

# KONTRON TOUCHSCREEN

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 KONTRON TOUCHSCREEN - USER GUIDE

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Kontron S&T AG

Lise-Meitner-Str. 3-5  
86156 Augsburg  
Germany  
[www.kontron.com](http://www.kontron.com)

## Intended Use

**THIS PRODUCT IS DESIGNED, MANUFACTURED AND INTENDED FOR USE OR RESALE FOR THE OPERATION IN PAINT MIXING ROOMS IN AUTO BODY WORKSHOPS, REQUIRING CLASS 1; DIVISION 2 (C1D2) CONFORMITY FOR USE IN A HAZARDOUS LOCATION/ZONE WHERE FLAMMABLE GAS, VAPORS AND LIQUIDS MAY BE PRESENT BUT ARE NOT LIKELY TO EXIST UNDER NORMAL OPERATING CONDITIONS.**

**THIS PRODUCT AND ASSOCIATED SOFTWARE ARE NOT DESIGNED, MANUFACTURED OR INTENDED FOR USE OR RESALE FOR THE OPERATION OF NUCLEAR FACILITIES, THE NAVIGATION, CONTROL OR COMMUNICATION SYSTEMS FOR AIRCRAFT OR OTHER TRANSPORTATION, AIR TRAFFIC CONTROL, LIFE SUPPORT OR LIFE SUSTAINING APPLICATIONS, WEAPONS SYSTEMS, OR ANY OTHER APPLICATION IN A HAZARDOUS ENVIRONMENT (OTHER THAN THAT DEFINED AS A C1D2 COMPLIANT HAZARDOUS LOCATION/ZONE), OR REQUIRING FAIL-SAFE PERFORMANCE, OR IN WHICH THE FAILURE OF PRODUCTS COULD LEAD DIRECTLY TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE (COLLECTIVELY, "HIGH RISK APPLICATIONS").**

You understand and agree that your use of Kontron devices as a component in High Risk Applications is entirely at your risk. To minimize the risks associated with your products and applications, you should provide adequate design and operating safeguards. You are solely responsible for compliance with all legal, regulatory, safety, and security related requirements concerning your products. You are responsible to ensure that your systems (and any Kontron hardware or software components incorporated in your systems) meet all applicable requirements. Unless otherwise stated in the product documentation, the Kontron device is not provided with error-tolerance capabilities and cannot therefore be deemed as being engineered, manufactured or setup to be compliant for implementation or for resale as device in High Risk Applications. All application and safety related information in this document (including application descriptions, suggested safety measures, suggested Kontron products, and other materials) is provided for reference only.

## Revision History

Revision	Brief Description of Changes	Date of Issue	Author/ Editor
1.0.	Initial version	2020-Oct-02	CW

## Terms and Conditions

Kontron warrants products as defined in this User Guide and in accordance with defined regional warranty periods. For more information about warranty compliance and conformity, and the warranty period in your region, visit <http://www.kontron.com/terms-and-conditions>.

Kontron sells the products as declared in Kontron's regional General Terms & Conditions of Sale, and Purchase Order Terms & Conditions. Visit <http://www.kontron.com/terms-and-conditions>.

For contact information, refer to the corporate offices contact information on the last page of this user guide or visit our website [CONTACT US](#).

## Customer Support

Find Kontron contacts by visiting: <http://www.kontron.com/support>.

## Customer Service

As a trusted technology innovator and global solutions provider, Kontron extends its embedded market strengths into a services portfolio allowing companies to break the barriers of traditional product lifecycles. Proven product expertise coupled with collaborative and highly-experienced support enables Kontron to provide exceptional peace of mind to build and maintain successful products.

For more details on Kontron's service offerings such as: enhanced repair services, extended warranty, Kontron training academy, and more visit <http://www.kontron.com/support-and-services/services>.

## Symbols

The following symbols may be used in this user guide

### **▲ DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.

### **▲ WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

### **NOTICE**

NOTICE indicates a property damage message.

### **▲ CAUTION**

CAUTION indicates a hazardous situation which, if not avoided, may result in minor or moderate injury.



#### Explosive Hazard

This symbol and title inform of a risk due to explosion. Failure to observe the precautions indicated may endanger your life/health and/or result in material damage.



#### Electric Shock!

This symbol and title warn of hazards due to electrical shocks (> 60 V) when touching products or parts of products. Failure to observe the precautions indicated and/or prescribed by the law may endanger your life/health and/or result in material damage.



#### ESD Sensitive Device!

This symbol and title inform that the electronic boards and their components are sensitive to static electricity. Care must therefore be taken during all handling operations and inspections of this product in order to ensure product integrity at all times.



#### HOT Surface!

Do NOT touch! Allow to cool before servicing.



#### Laser!

This symbol and title inform of the risk of exposure to a laser beam/light emitting devices (LEDs) from an electrical device. Take measure to prevent exposure to eyes.



This symbol indicates general information about the product and the user guide.

This symbol also indicates detail information about the specific product configuration.



This symbol precedes helpful hints and tips for daily use.

## For Your Safety

Your new Kontron product was developed and tested carefully to provide all features necessary to ensure its compliance with electrical safety requirements. The product was designed for a long fault-free life. However, the life expectancy of your product can be drastically reduced by improper treatment during unpacking and installation. Therefore, in the interest of your own safety and the correct operation of your new Kontron product, users are requested to conform with the following guidelines.

### Hazardous Environment

Only products or parts of a product certified for use within a hazardous operating environment may operate in a hazardous location/zone. The product's type label confirms if the product is certified for operation in a hazardous location/zone. Before handling the product within a hazardous operating environment the user must disconnect the product from the mains power supply and read and understand the safety precautions within this user guide.

#### **⚠ DANGER**



#### **Explosive Hazard!**

Risk of explosion, due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

To avoid observe the following:

- Touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone
- Transmitter must only be operated in a non-hazardous environment

#### **⚠ DANGER**



#### **Risque d'explosion!**

Risque d'explosion dû à des étincelles électriques présentes derrière le couvercle du connecteur dans un environnement de travail où des gaz inflammables peuvent exister, tel que défini par C1D2.

Pour éviter cela, il convient de respecter impérativement les règles suivantes :

- Le couvercle du connecteur du moniteur à écran tactile ne doit être ouvert que par du personnel Kontron qualifié, et seulement lorsqu'il s'est assuré de se trouver dans une zone non dangereuse
- L'émetteur ne doit être utilisé que dans un environnement non dangereux

### High Voltage Safety Instructions

As a precaution and in case of danger, the power connector must be easily accessible. The power connector is the product's main disconnecting device.

#### **⚠ CAUTION**

#### **Warning**

All operations on this product must be carried out by sufficiently skilled personnel only.

#### **⚠ CAUTION**



#### **Electric Shock!**

Before installing the product always ensure that the power is switched off and disconnect the mains power cable or any other cable(s) that provide external voltages to the product.

The ground cable's connection to a central grounding point shall remain connected. The ground cable must be the last cable to be disconnected or the first cable to be connected.

## Special Handling and Unpacking Instruction

### NOTICE



#### 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.

### CAUTION

Handling and operation of the product is permitted only for trained personnel within a work place that is access controlled. Follow the "General Safety Instructions" within this user guide and/or supplied with the product.

Do not handle this product out of its protective enclosure while it is not used for operational purposes unless it is otherwise protected.

Whenever possible, unpack or pack this product only at EOS/ESD safe workstations. Where a safe workstation is not guaranteed, it is important for the user to be electrically discharged before touching the product with his/her hands or tools. This is most easily done by touching a metal part of your system housing.

## Lithium Battery Precautions

If your product is equipped with a lithium battery, take the following precautions when replacing the battery.

### CAUTION

Danger of explosion if the battery is replaced incorrectly.

- Replace only with same or equivalent battery type recommended by the manufacturer.
- Dispose of used batteries according to the manufacturer's instructions.

## General Instructions on Usage

In order to maintain Kontron's product warranty, this product must not be opened, altered or modified in any way. Changes or modifications to the product, that are not explicitly approved by Kontron and described in this user guide or received from Kontron Support as a special handling instruction, will void your warranty.

This product should only be installed in an environment that fulfills all necessary technical and environmental requirements allowed for by the certification marking. This also applies to the operational temperature range that must not be exceeded. If batteries are present, their temperature restrictions must be taken into account.

In performing all necessary installation activities, only follow the instructions supplied within the latest version of the product's user guide.

Keep all the original packaging material for future storage or warranty shipments. If it is necessary to store or ship the product then re-pack it in the same manner as it was delivered.

Special care is necessary when handling or unpacking the product. Refer to the Special Handling and Unpacking Instruction.

## Quality and Environmental Management

Kontron aims to deliver reliable high-end products designed and built for quality, and aims to complying with environmental laws, regulations, and other environmentally oriented requirements. For more information regarding Kontron's quality and environmental responsibilities, visit <http://www.kontron.com/about-kontron/corporate-responsibility/quality-management>.

## Disposal and Recycling

Kontron's products are manufactured to satisfy environmental protection requirements where possible. Many of the components used are capable of being recycled. Final disposal of this product after its service life must be accomplished in accordance with applicable country, state, or local laws or regulations.

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# 1/ Introduction

This user guide focuses on describing the special features of the KONTRON TOUCHSCREEN and informs users how to set up, install, operate and maintain the KONTRON TOUCHSCREEN safely for use in a Class 1, Division 2 (C1D2) hazardous location/zone.

Kontron recommends that new users study the instructions within this user guide before working with or switching on the power to the KONTRON TOUCHSCREEN.

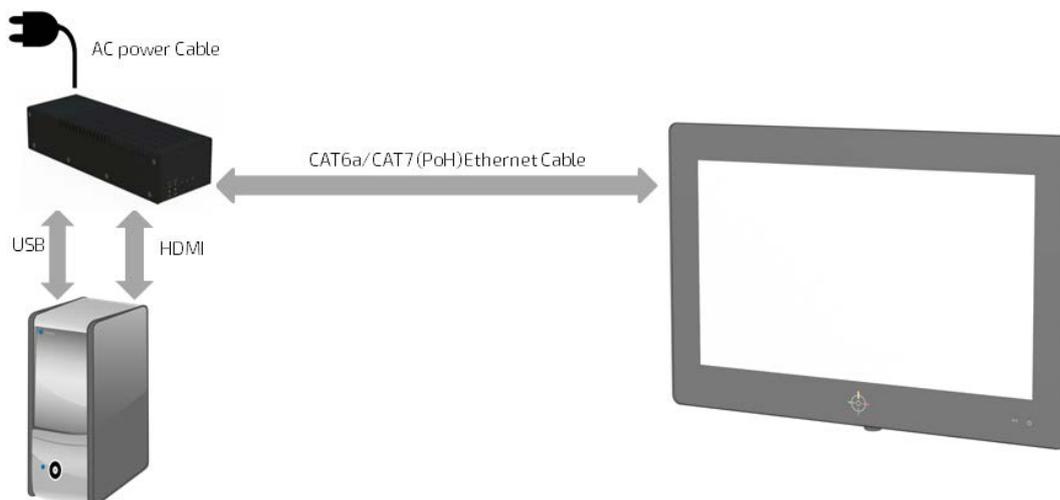
## 1.1. Product Description

The KONTRON TOUCHSCREEN consists of three parts:

- ▶ Touchscreen monitor with factory installed CAT6a/CAT7 (PoH) Ethernet cable (lengths: 25 ft., 50 ft. or 100 ft.)
- ▶ Transmitter
- ▶ Cable kit (including: USB cable, HDMI cable and mains power cable)

The touchscreen monitor is designed and certified for use in a Class 1, Division 2 (C1D2) hazardous location/zone, and using a suitable mounting bracket is mountable on a fixed location VESA mount. The touchscreen monitor connects to the transmitter using the touchscreen monitor's factory installed CAT6a/CAT7 (PoH) Ethernet cable. The CAT6a/CAT7 (PoH) Ethernet cable transmits power in conjunction with Ethernet and USB signals over a single Ethernet cable. The supported Ethernet cable lengths are 25 ft., 50 ft. or 100 ft., enabling installation of the touchscreen monitor in a remote hazardous location/zone. The transmitter is located in a non-hazardous location/zone on top of a DELL XE3 PC (or similar PC) and connects to the PC using the supplied USB and HDMI cables. Both the transmitter and the touchscreen monitor are switched on by connecting the supplied mains power cable to the transmitter's power connector and a mains power outlet.

Figure 1: KONTRON TOUCHSCREEN System Diagram



The main KONTRON TOUCHSCREEN features are:

- ▶ 21.5" Full-HD touchscreen monitor
- ▶ Class 1, Division 2 (C1D2) certification (touchscreen monitor only!)
- ▶ Industry standard VESA mounting pattern 75 mm or 100 mm
- ▶ Up to 100 ft. CAT6a/CAT7 (PoH) Ethernet cable
- ▶ Status LEDs for fault finding

## 2/ Certifications

Read and observe the information within this chapter that provides information regarding the safe installation and operation of the KONTRON TOUCHSCREEN within a hazardous location/zone and a non-hazardous location/zone.

### 2.1. Class 1, Division 2 (C1D2)

The hazardous location/zone Class 1, Division 2 (C1D2) limits give the minimal installation requirements for the KONTRON TOUCHSCREEN's touchscreen monitor with installed CAT6a/CAT7 (PoH) Ethernet cable when used in a C1D2 hazardous location/zone.

C1D2 compliance specifies:

- ▶ Class 1: Flammable gas, vapors and liquids
- ▶ Division 2: Flammable substance that are not likely to exist under normal operating conditions

This information covers installation sites within North America (USA and Canada). Additional local requirements may also apply. It is the user's responsibility to ensure that the end installation complies with all applicable local, national and international requirements.

When installing the touchscreen monitor in a C1D2 hazardous location/zone, the following must be observed:

- ▶ The installation in the USA must be made in accordance to the National Electrical Code® (NEC), National Fire Protection Association (NFPA) 70, Article 500, 501, 504 and 505, and ANSI/ ISA-RP 12.6 wiring practices for instrumentation within a hazardous location Part 1; as well as all applicable local/regional codes.  
The installation in Canada must be made in accordance to the Canadian Electrical Code® (CEC), Part 1, Section 18, as well as all applicable local/regional codes.
- ▶ Ground the touchscreen monitor with a ground cable in the USA in accordance with NEC NFPA 70, article 500, 501, 504 and 505, and in Canada in accordance with CEC, Part 1. The resistance between the touchscreen monitor and ground must be less than one ohm.
- ▶ All connections to the touchscreen monitor must be made when the touchscreen monitor is in a non-hazardous location/zone and the KONTRON TOUCHSCREEN is switched off by disconnecting the mains power cable from either the mains power outlet or the transmitter's power connector.

#### **⚠ DANGER**



#### **Explosive Hazard!**

Risk of explosion, due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

To avoid observe the following:

- Touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone
- Transmitter must only be operated in a non-hazardous environment

#### **⚠ DANGER**



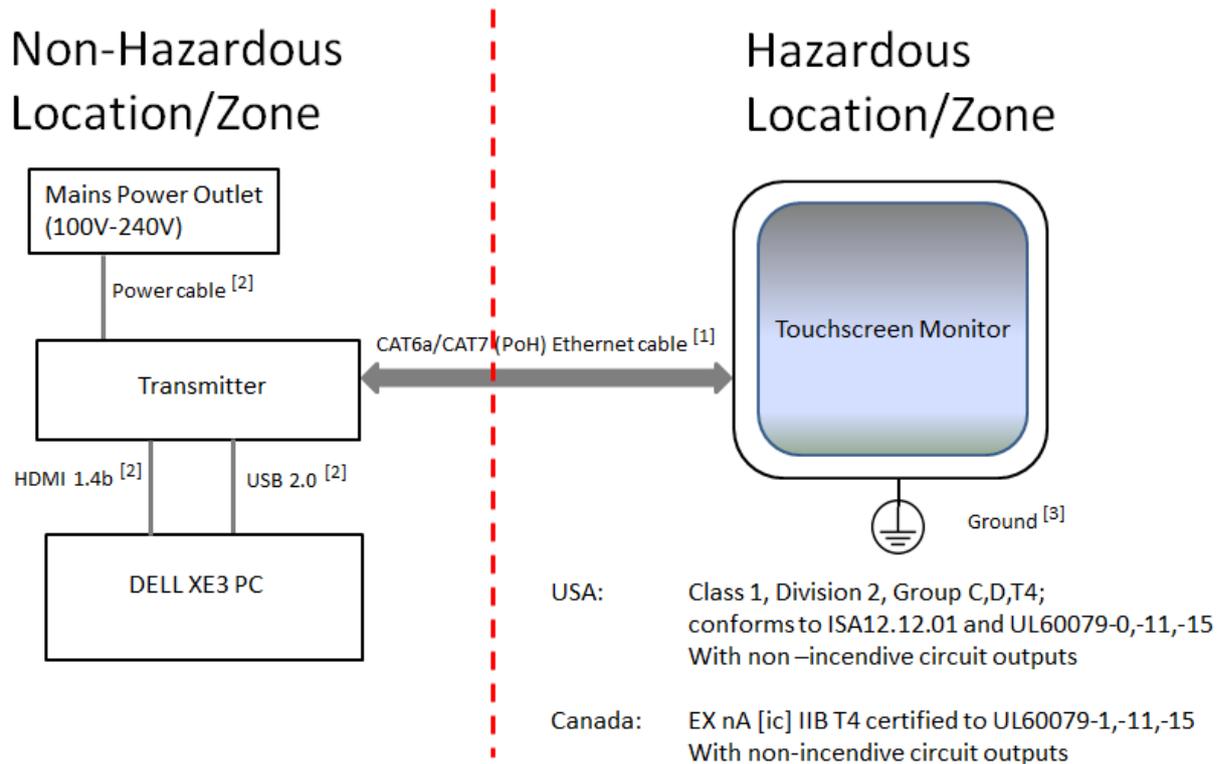
#### **Risque d'explosion!**

Risque d'explosion dû à des étincelles électriques présentes derrière le couvercle du connecteur dans un environnement de travail où des gaz inflammables peuvent exister, tel que défini par C1D2.

Pour éviter cela, il convient de respecter impérativement les règles suivantes :

- Le couvercle du connecteur du moniteur à écran tactile ne doit être ouvert que par du personnel Kontron qualifié, et seulement lorsqu'il s'est assuré de se trouver dans une zone non dangereuse
- L'émetteur ne doit être utilisé que dans un environnement non dangereux

Figure 2: Installation Requirements for Class 1, Division 2 Hazardous Location/Zone (USA and Canada)



[1] It is prohibited to remove the factory installed CAT6a/CAT7 (PoH) Ethernet cable from the touchscreen monitor while located in a hazardous location/zone. Removing or replacing the CAT6a/CAT7 (PoH) Ethernet cable from the touchscreen monitor invalidates the prerequisites for C1D2 certification.

[2] All parts of the cable kit supplied in the delivery must be connected within a non-hazardous location/zone.

[3] Before mounting in a C1D2 hazardous location/zone, install the ground cable to the touchscreen monitor within a non-hazardous location/zone. When mounted in a C1D2 hazardous location/zone, connect the ground cable to the installation site's ground connection.

Figure 3: Authorization UL Mark for C1D2 Certification

<p><b>NOTICE OF COMPLETION AND AUTHORIZATION TO APPLY THE UL MARK</b></p>		 2020-08-13
<p>Mr. Rick Starks          KONTRON AMERICA INC          9477 Waples St, Suite 150          San Diego, CA, 92121, US</p>		
Our Reference:	File E517225, Vol 1	Order: 13146731 Project: 4789272218
Your Reference:	4500085883	
Project Scope:	PL 1 & 2 - 4789272218 - CA - KONTRON AMERICA INC -1101768726 - E139359 - NWGQ - Review this new project for C1D2 certification	
<p>Dear Mr. Rick Starks:</p> <p>Congratulations! UL's investigation of your product(s) has been completed under the above Reference Number and the product was determined to comply with the applicable requirements. This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark at authorized factories under UL's Follow-Up Service Program. To provide your manufacturer(s) with the intended authorization to use the UL Mark, you must send a copy of this notice to each manufacturing location currently authorized under File E517225, Vol 1.</p> <p>Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent in the near future. Until then, this letter authorizes application of the UL Mark for 90 days from the date indicated above.</p> <p>Additional requirements related to your responsibilities as the Applicant can be found in the document "Applicant responsibilities related to Early Authorizations" that can be found at the following web-site: <a href="http://www.ul.com/EAResponsibilities">http://www.ul.com/EAResponsibilities</a></p> <p>Any information and documentation provided to you involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.</p> <p>We are excited you are now able to apply the UL Mark to your products and appreciate your business. Feel free to contact me or any of our Customer Service representatives if you have any questions.</p>		
<p>Very truly yours,</p> <p>Anastasios Kokkinias          Engineer Project Associate          Anastasios.Kokkinias@ul.com</p>	<p>Reviewed by:</p> <p>Bruce A. Mahrenholz          CPO Director          Bruce.A.Mahrenholz@ul.com</p>	
<p><small>d8b546fb-6884-4d22-bd32-162335495486</small></p>		

## 2.2. UL 62368-1

These general safety limits are applicable to the safety of electrical and electronic equipment within the field of audio, video, information and communication technology, and business and office machines with a rated voltage not exceeding 600 V.

Figure 4: Authorization UL Mark

NOTICE OF COMPLETION AND AUTHORIZATION TO APPLY THE UL MARK		 2020-07-23
<p>Mr. Rick Starks KONTRON AMERICA INC 9477 Waples St, Suite 150 San Diego, CA, 92121, US</p>		
Our Reference:	File E514813-A6001, Vol X1	Order: 13146731 Project: 4789272218
Your Reference:	4500085883	
Project Scope:	4789272218.3 - UL/cUL/CB - New 21.5" Touch Display Monitor model: Kontron Touchscreen Monitor and AC class I product Transmitter unit model: Kontron – Transmitter full evaluation. Indoor product with IP5x (category 2), IPx4 rating for the monitor.	
Dear Mr. Rick Starks:		
<p>Congratulations! UL's investigation of your product(s) has been completed under the above Reference Number and the product was determined to comply with the applicable requirements. This letter temporarily supplements the UL Follow-Up Services Procedure and serves as authorization to apply the UL Mark at authorized factories under UL's Follow-Up Service Program. To provide your manufacturer(s) with the intended authorization to use the UL Mark, you must send a copy of this notice to each manufacturing location currently authorized under File E514813-A6001 , Vol X1.</p>		
<p>Records in the Follow-Up Services Procedure covering the product are now being prepared and will be sent in the near future. Until then, this letter authorizes application of the UL Mark for 90 days from the date indicated above.</p>		
<p>Additional requirements related to your responsibilities as the Applicant can be found in the document "Applicant responsibilities related to Early Authorizations" that can be found at the following web-site: <a href="http://www.ul.com/EAResponsibilities">http://www.ul.com/EAResponsibilities</a></p>		
<p>Any information and documentation provided to you involving UL Mark services are provided on behalf of UL LLC (UL) or any authorized licensee of UL.</p>		
<p>We are excited you are now able to apply the UL Mark to your products and appreciate your business. Feel free to contact me or any of our Customer Service representatives if you have any questions.</p>		
Very truly yours,	Reviewed by:	
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d8b546fb-6884-4d22-bd32-162335495486		

Figure 5: UL/cUL/IEC 62368-1 Touchscreen Monitor

	<p>Ref. Certif. No.</p> <p><b>US-36233-UL</b></p>
<p><b>IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME</b></p>	
<p><b>CB TEST CERTIFICATE</b></p>	
<p>Product</p> <p>Name and address of the applicant</p> <p>Name and address of the manufacturer</p> <p>Name and address of the factory</p> <p><small>Note: When more than one factory, please report on page 2</small></p> <p>Ratings and principal characteristics</p> <p>Trademark / Brand (if any)</p> <p>Type of Customer's Testing Facility (CTF) Stage used</p> <p>Model / Type Ref.</p> <p>Additional information (if necessary may also be reported on page 2)</p> <p>A sample of the product was tested and found to be in conformity with</p> <p>As shown in the Test Report Ref. No. which forms part of this Certificate</p>	<p>LCD Display</p> <p>KONTRON AMERICA INC 9477 WAPLES ST, SUITE 150 SAN DIEGO CA 92121 USA</p> <p>KONTRON AMERICA INC 9477 WAPLES ST, SUITE 150 SAN DIEGO CA 92121 USA</p> <p>KONTRON EUROPE GMBH LISE-MEITNER-STR 3-5 86156 AUGSBURG GERMANY</p> <p><input type="checkbox"/> Additional Information on page 2</p> <p>Monitor Rated: 56VDC, 1.5A (Class III product rating is optional)</p>  <p>Kontron Touchscreen Monitor</p> <p>Additionally evaluated to EN 62368-1:2014 / A11:2017; National Differences specified in the CB Test Report.</p> <p><input type="checkbox"/> Additional Information on page 2</p> <p>IEC 62368-1:2014</p> <p>E514813-A6001-CB-1 issued on 2020-07-22</p>
<p>This CB Test Certificate is issued by the National Certification Body</p>	
 <p>Date: 2020-07-24</p>	<p><input checked="" type="checkbox"/> UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA</p> <p><input type="checkbox"/> UL (Denko), Borupvang SA DK-2750 Balerup, DENMARK</p> <p><input type="checkbox"/> UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN</p> <p><input type="checkbox"/> UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA</p> <p>Signature:  Jolanta M. Wroblewska</p> <p><small>For full legal entity names see www.ul.com/nobnames</small></p>

Figure 6: UL/cUL/IEC 62368-1 Transmitter

		<b>Ref. Certif. No.</b>  <b>US-36234-UL</b>						
<b>IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME</b>								
<b>CB TEST CERTIFICATE</b>								
Product  Name and address of the applicant  Name and address of the manufacturer  Name and address of the factory  <small>Note: When more than one factory, please report on page 2</small>  Ratings and principal characteristics    Trademark / Brand (if any)    Type of Customer's Testing Facility (CTF) Stage used  Model / Type Ref.  Additional information (if necessary may also be reported on page 2)  A sample of the product was tested and found to be in conformity with  As shown in the Test Report Ref. No. which forms part of this Certificate	LCD Display  KONTRON AMERICA INC 9477 WAPLES ST, SUITE 150 SAN DIEGO CA 92121 USA  KONTRON AMERICA INC 9477 WAPLES ST, SUITE 150 SAN DIEGO CA 92121 USA  KONTRON EUROPE GMBH LISE-MEITNER-STR 3-5 86156 AUGSBURG GERMANY  <input type="checkbox"/> Additional Information on page 2  Transmitter Rated: 100-240VAC, 50/60Hz, 1.8A    Kontron – Transmitter  Additionally evaluated to EN 62368-1:2014 / A11:2017; National Differences specified in the CB Test Report. <input type="checkbox"/> Additional Information on page 2  IEC 62368-1:2014  E514813-A6001-CB-1 issued on 2020-07-22							
This CB Test Certificate is issued by the National Certification Body								
<table border="0"> <tr> <td style="vertical-align: middle;">  </td> <td style="vertical-align: top;"> <input checked="" type="checkbox"/> UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA  <input type="checkbox"/> UL (Demko), Borupvang 5A DK-2750 Balerup, DENMARK  <input type="checkbox"/> UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN  <input type="checkbox"/> UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA                 </td> <td style="vertical-align: bottom; font-size: small;">                     For full legal entity names see <a href="http://www.ul.com/nobnames">www.ul.com/nobnames</a> </td> </tr> <tr> <td style="vertical-align: top;"> <b>Date:</b> 2020-07-24                 </td> <td style="vertical-align: top;"> <b>Signature:</b>                   Jolanta M. Wroblewska             </td> <td></td> </tr> </table>				<input checked="" type="checkbox"/> UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA <input type="checkbox"/> UL (Demko), Borupvang 5A DK-2750 Balerup, DENMARK <input type="checkbox"/> UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN <input type="checkbox"/> UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA	For full legal entity names see <a href="http://www.ul.com/nobnames">www.ul.com/nobnames</a>	<b>Date:</b> 2020-07-24	<b>Signature:</b>  Jolanta M. Wroblewska	
	<input checked="" type="checkbox"/> UL (US), 333 Pfingsten Rd IL 60062, Northbrook, USA <input type="checkbox"/> UL (Demko), Borupvang 5A DK-2750 Balerup, DENMARK <input type="checkbox"/> UL (JP), Marunouchi Trust Tower Main Building 6F, 1-8-3 Marunouchi, Chiyoda-ku, Tokyo 100-0005, JAPAN <input type="checkbox"/> UL (CA), 7 Underwriters Road, Toronto, M1R 3B4 Ontario, CANADA	For full legal entity names see <a href="http://www.ul.com/nobnames">www.ul.com/nobnames</a>						
<b>Date:</b> 2020-07-24	<b>Signature:</b>  Jolanta M. Wroblewska							

## 2.3. FCC Part 15 Subpart B

The product has been tested and found to comply with the limits according to FCC 47 CFR Part 15 Subpart B / ICES-003 rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This product generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this product does cause harmful interference to radio or television reception, that can be determined by turning the product off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- ▶ Reorient or relocate the receiving antenna.
- ▶ Increase the separation between the product and receiver.
- ▶ Connect the product into an outlet on a circuit different from that to which the receiver is connected.
- ▶ Consult the dealer or an experienced technician for help.

Kontron is not responsible for any radio television interference caused by unauthorized modifications of this product or the substitution or attachment of cables other than those supplied by Kontron. The correction of interference caused by such unauthorized modification, substitution or attachment will be the responsibility of the user.

The use of shielded I/O cables is required when connecting to the product, only use the cables supplied in the cable kit. Failure to do so may violate FCC and ICES rules.

## 2.4. List of Certifications

If modified, the prerequisites for specific approvals no longer apply. Kontron is not responsible for any unauthorized modifications of the product or the substitution or attachment of cables other than those supplied by Kontron. The correction of an unauthorized modification, substitution or attachment will be the responsibility of the user.

The touchscreen monitor complies with the following standards and may be operated in a C1D2 hazardous location/zone.

**Table 1: Touchscreen Monitor Certifications**

Safety – Hazardous Environment		
USA	Class 1, Division 2, Grp C, D T4	ISA 12.12.01 UL60079-0, -11, -15
Canada	Ex nA [ic] IIB T4	UL60079 -0, -11, -15
Safety		
USA	UL 62368-1 2 <sup>nd</sup> Edition	
Canada	cUL 62368-1 2 <sup>nd</sup> Edition	
EMC/EMI		
USA	FCC 47 Part 15 Subpart B, Class A	
	ANSI C63.4 :2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.
Canada	ICES-003, Class A	
Environment		
RoHS II	Compliant with the Restriction of Hazardous Substances (RoHS) 2011/65/EU directive or the later status thereof, to reduce hazardous substances in electrical and electronic equipment	
REACH	Compliant with the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation No. 1907/2006 to identify the intrinsic properties of chemical substances earlier	

The transmitter complies with the following standards and may only be operated in a non-hazardous location/zone.

**Table 2: Transmitter Certifications**

Safety		
USA & Canada	UL 62368-1 2 <sup>nd</sup> Edition	
Canada	cUL 62368-1 2 <sup>nd</sup> Edition	
EMC/EMI		
USA	FCC 47 CFR Part 15 Subpart B, Class B	
	ANSI C63.4 :2014	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.
Canada	ICES-003, Class B	
Environment		
RoHS II	Compliant with the Restriction of Hazardous Substances (RoHS) 2011/65/EU directive or the later status thereof, to reduce hazardous substances in electrical and electronic equipment	
REACH	Compliant with the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation No. 1907/2006 to identify the intrinsic properties of chemical substances earlier	

### 3/ General Safety Instructions

#### **▲WARNING**



Read this chapter carefully and take careful note of the instructions, that have been compiled for your safety and to ensure to apply in accordance with intended regulations. If the following general safety instructions are not observed, it could lead to injuries to the operator and/or damage of the product; in cases of nonobservance of the instructions Kontron is exempt from accident liability, this also applies during the warranty period.

The product has been built and tested according to the general safety requirements for low voltage (LVD) applications and has left Kontron in safety-related, flawless condition. To maintain this condition and also to ensure safe operation, the operator must not only observe the correct operating conditions for the product but also the following general safety instructions:

- ▶ The product must be used as specified in the product documentation, in which the instructions for safety for the product and for the operator are described. These contain guidelines for mounting, setting up, powering on and repair/maintenance.
- ▶ The on-site electrical installation must meet the requirements of the country's specific local regulations.
- ▶ The product must be connected only to a certified mains power supply complying with the requirements of IEC 62368-1 standard or better.
- ▶ If a power supply comes with the product, only this power supply should be used to supply the product.
- ▶ If a power cable comes with the product, only this cable should be used.
- ▶ Do not use an extension cable to connect the product.
- ▶ To guarantee that sufficient air circulation is available to cool the product, ensure that any ventilation openings are not covered or blocked. If an air filter is provided, this should be cleaned regularly.
- ▶ Do not place the product close to heat sources or damp places. Make sure the product is well ventilated.
- ▶ Complete disconnection of the product is only possible if the power cable is removed from the mains power outlet, or from the product. Ensure that there is free and easy access to the power cable to enable disconnection.
- ▶ Handling and operation of the product is permitted only by trained personnel within a work place that is access controlled.
- ▶ The product must only be opened/maintained by trained Kontron service employees, in a non-hazardous location/zone.
- ▶ Only cables delivered with the product that fulfill the safety requirements as stipulated by the applied safety standards and approved by Kontron may be connected to the product.
- ▶ Note: safe operation is no longer possible when any of the following applies:
  - ▶ The product has visible damages.
  - ▶ The product is no longer functioning.
 In this case, the product must be switched off and it must be ensured that the product can no longer be operated.
- ▶ Only products or parts of products certified for use within a hazardous operating environment can be use in a hazardous location. Refer to the product's type label to confirm the allowed operating environment.

### 3.1. Electrostatic Discharge (ESD) Precautions



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A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry.

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Proper packaging and grounding techniques are necessary precautions to prevent damage. Always take the following general precautions:

1. Always be properly grounded when touching ESD sensitive product(s).
2. Always handle ESD sensitive product(s) by their casing.
3. Switch off power and input signals before inserting and removing connectors or connecting test equipment.

### 3.2. Grounding Methods

Proper grounding methods are necessary to avoid damage to the product. Always take the following general precautions:

1. Ensure the product is connected to ground before switching on the product.
2. Connect the product only to an applied ground that meets all applicable local, national and international grounding requirements.
3. When assembling, the first cable to be connected is the ground and when disassembling, the last cable to be removed is the ground cable.

#### **CAUTION**

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##### Ground Properly

The installation sites applied ground must meet the ground requirements specified in this user guide and in your local, national and international region.

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## 4/ Shipment and Unpacking

### 4.1. Packaging

The KONTRON TOUCHSCREEN is packaged together with all standard parts listed in Table 3: Pack List, within a product specific cardboard package designed to provide adequate protection against free fall.

### 4.2. Unpacking

To unpack the product, perform the following:

1. Remove packaging.
2. Do not discard the original packaging. Keep the original packaging for future transportation or storage.
3. Check the delivery for completeness by comparing the delivery with the original order.
4. Keep the associated paperwork. It contains important information for handling the product.
5. Check the contents for visible shipping damage.
6. If you notice any shipping damage or inconsistencies with your order, contact Kontron for help and information.

### 4.3. Pack List

Check that your KONTRON TOUCHSCREEN delivery is complete, and contains the items listed below. If you discover damaged or missing items, contact your supplier.

**Table 3: Pack List**

Pack List Items	Qty.	Description
Touchscreen monitor	1	21.5" touchscreen monitor with installed CAT6a/CAT7 Ethernet cable (cable length as ordered 25 ft., 50 ft. or 100 ft.)
Transmitter	1	HDBaseT transmitter
Cable Kit	1	1x USB cable 1x HDMI cable 1x Mains power cable (regional)
General Safety Instructions	1	Safety Instructions for the product




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The DELL XE3 PC (or similar PC) is not part of the KONTRON TOUCHSCREEN delivery and must be supplied by the user.

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### 4.4. Product Identification - Type Label

The product identification label referred to as type label in this user guide includes important information about the product. The touchscreen monitor and the transmitter have different type labels as they are certified for different installation environments. The touchscreen monitor is certified for use in a hazardous location (C1D2) and the transmitter is certified only for use in a non-hazardous location.

Figure 7: Touchscreen Monitor Type Label

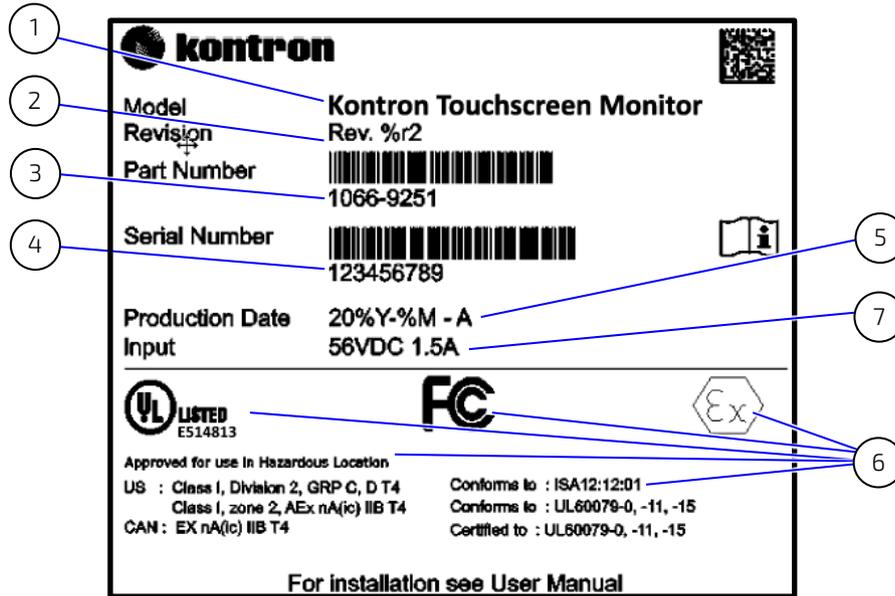
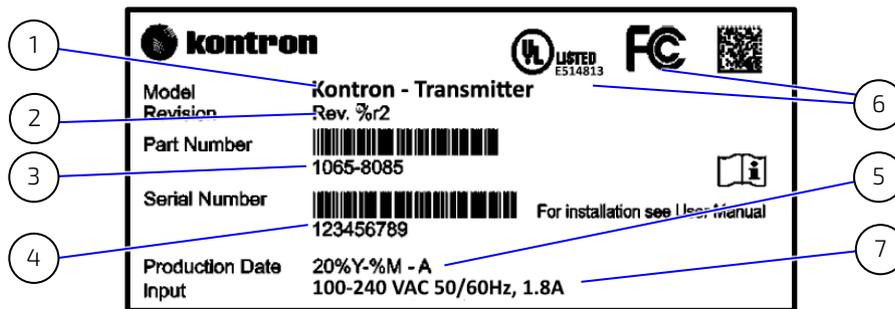


Figure 8: Transmitter Type Label



- |   |                 |   |                                       |
|---|-----------------|---|---------------------------------------|
| 1 | Product model   | 5 | Date of production (Year/ Month/ Day) |
| 2 | Revision number | 6 | Certifications Markings               |
| 3 | Part number     | 7 | Electrical specification              |
| 4 | Serial number   |   |                                       |

## 5/ Features

### 5.1. Touchscreen Monitor

The touchscreen monitor is certified for use in Class 1, Division 2 (C1D2) hazardous locations/zones and mountable on a fixed location VESA mount using a suitable mounting bracket.

Figure 9: Touchscreen Monitor Front View

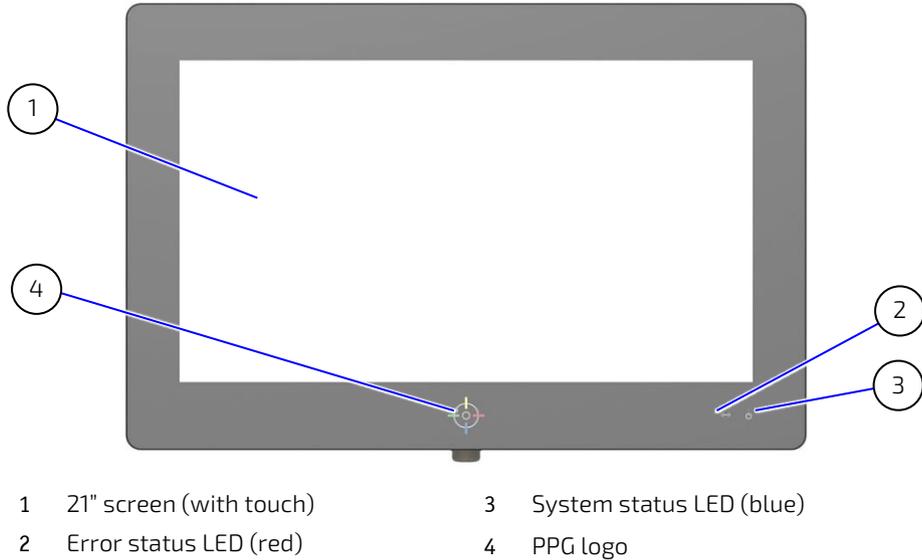
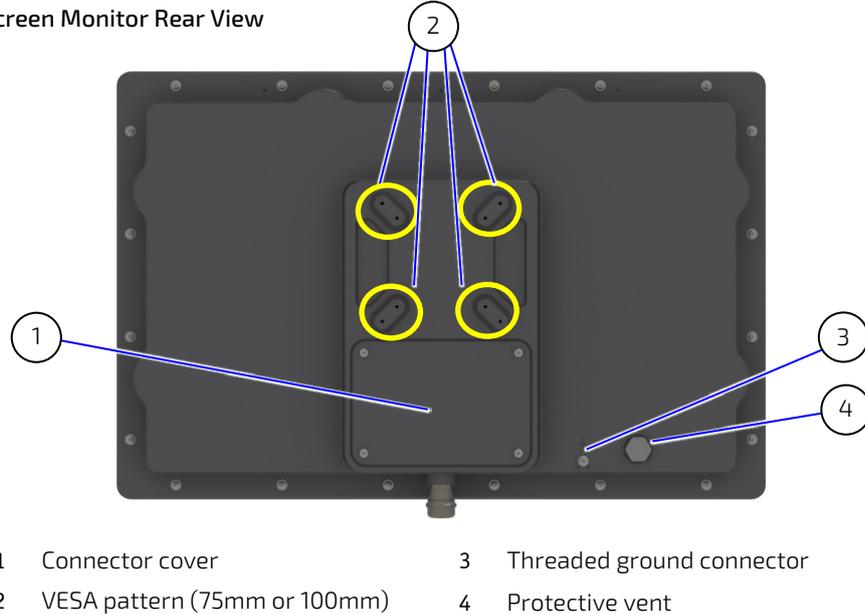


Figure 10: Touchscreen Monitor Rear View



**⚠ DANGER**

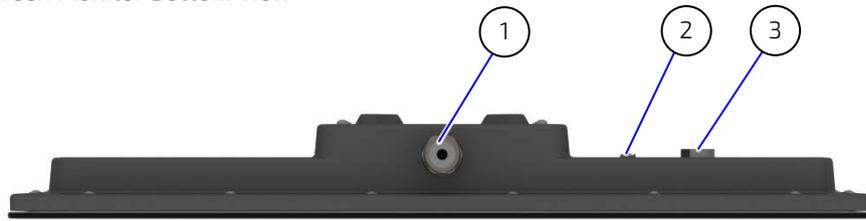


**Explosive Hazard!**

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

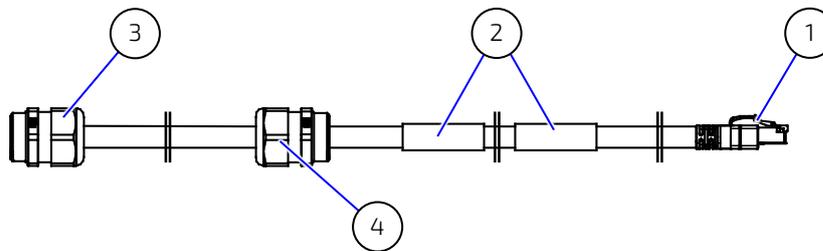
- Touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone.
- Transmitter must only be operated in a non-hazardous environment.

Figure 11: Touchscreen Monitor Bottom View



- 1 Cable gland (for factory installed CAT6a/CAT7 (PoH) Ethernet cable)
- 2 Threaded ground connector
- 3 Protective vent

Figure 12: CAT6a/CAT7 (PoH) Ethernet Cable



- 1 RJ45 Connector to transmitter
- 2 Product ID label
- 3 Cable gland installed in touchscreen monitor (Figure 11, pos. 1)
- 4 Cable gland. (Used for additional sealing requirements.)

**NOTICE**

When using the additional cable gland, Do not over tighten as this may damage the seal. Tighten the gland using a torque of 12 Mn.

## 5.2. Touchscreen Monitor Parts

### 5.2.1. Status LED Settings

The system status LED and error status LED on the touchscreen monitor (Figure 9, pos. 2 and 3) indicate the status of the KONTRON TOUCHSCREEN. When operating normally, the system status LED is a dim blue and the error status LED is off.

Table 4: Touchscreen Monitor LED Status

LEDs	Color	LED Status
System Status LED	Blue	Dim (low brightness) = HDMI detected (normal operation) Brightness fades = No HDMI
Error Status LED (blinking)	Red	Off = No error (normal operation) 1 Blink/5 sec = No link 3 Blinks/5 sec = Firmware is not operating fully

## 5.2.2. Connector Cover

The connector cover (Figure 10, pos. 1) located on the rear side of the touchscreen monitor seals the entrance to the internal connectors. Users are prohibited from opening the connector cover in a hazardous location/zone. When closed a protection label seals the connector cover to deter users from opening the connector cover. Opening the connector cover invalidates the KONTRON TOUCHSCREEN's warranty.

### **⚠ DANGER**



#### **Explosive Hazard!**

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

- The touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone.

## 5.2.3. CAT6a/CAT7 Ethernet Cable (PoH)

The CAT6a/CAT7 (PoH) Ethernet cable is factory installed to the touchscreen monitor's cable gland (Figure 11, pos. 1) on the bottom side of the touchscreen monitor. The CAT6a/CAT7 (PoH) Ethernet cable transmits power in conjunction with Ethernet and USB signals over a single Ethernet cable. The other end of the CAT6a/CAT7 (PoH) Ethernet cable connects to the transmitter. The allowed distance between the touchscreen monitor and the transmitter depends on the length of the CAT6a/CAT7 (PoH) Ethernet cable (25 ft., 50 ft. or 100 ft.). If additional sealing between the hazardous area and non-hazardous area is required, the CAT6a/CAT7 Ethernet (PoH) cable supports an additional cable gland.

### **⚠ DANGER**



#### **Explosive Hazard!**

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

- The touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone.

## 5.2.4. Protective Vent

The protective vent (Figure 10, pos. 4) located on the rear side of the touchscreen monitor equalizes pressure and reduces condensation in the sealed enclosure while protecting against contamination from liquids or solids in the outside environment.

### **⚠ CAUTION**

#### **Removal of the Protective Vent is prohibited!**

Do not remove or replace the protective vent. If damaged, the protective vent must be replaced by Kontron, refer to Chapter 11.2: Returning Defective Merchandise.

## 5.2.5. Ground Connector

The threaded ground connector (Figure 10, pos. 3) located on the rear side of the touchscreen monitor connects to a ground cable with suitable grounding ring. A ground cable is not part of the KONTRON TOUCHSCREEN delivery. It is the user's responsibility to supply a ground cable of adequate length, and with a suitable grounding ring that complies with all applicable local, national and international grounding requirements.

### **⚠ CAUTION**

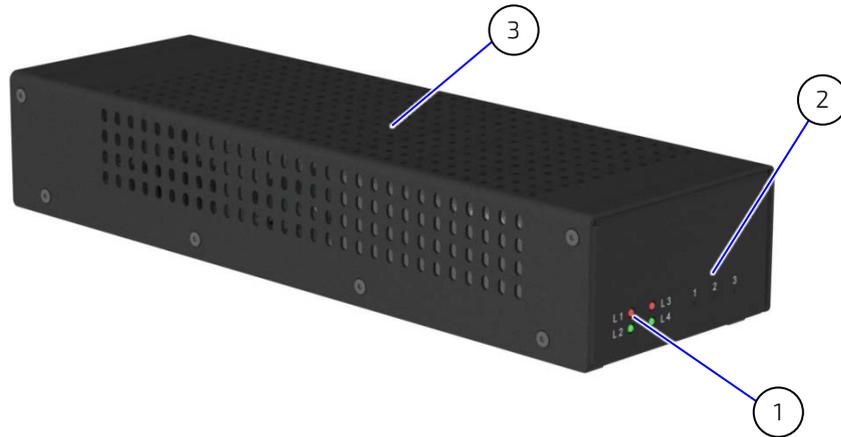
#### **Ground Properly**

The installation sites applied ground must meet the ground requirements specified in this user guide and in your local, national and international region.

### 5.3. Transmitter

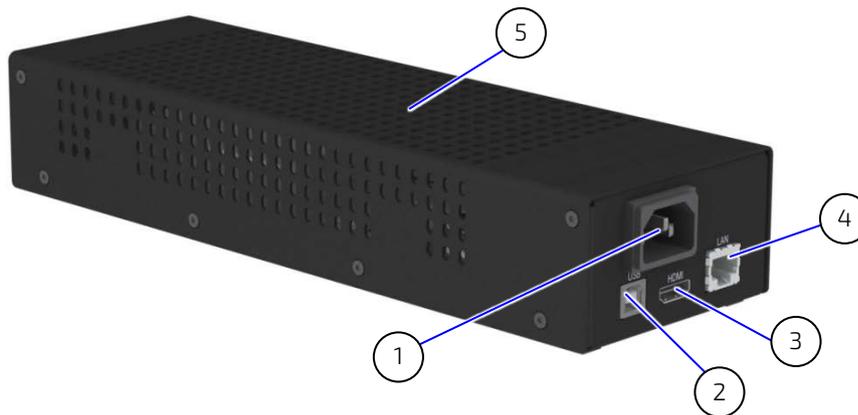
The transmitter has four rubber feet on the underside and stands on top of a DELL XE3 PC (or similar PC) with the ventilation openings facing upwards. The front side of the transmitter contains status LEDs and reset buttons. The rear side of the transmitter contains four connectors USB, HDMI, LAN and power.

Figure 13: Transmitter Front View



- |   |                                  |   |                      |
|---|----------------------------------|---|----------------------|
| 1 | Status LEDs L1, L2, L3, L4       | 3 | Ventilation openings |
| 2 | Reset and Update buttons 1, 2, 3 |   |                      |

Figure 14: Transmitter Rear View



- |   |                 |   |                      |
|---|-----------------|---|----------------------|
| 1 | Power connector | 3 | HDMI 1.4b            |
| 2 | USB 2.0 port    | 4 | LAN (PoH)            |
|   |                 | 5 | Ventilation openings |



**Explosive Hazard!**

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

- The transmitter must only be operated in a non-hazardous environment.

## 5.4. Transmitter Parts

### 5.4.1. Status LED Settings

The four status LEDs L1, L2, L3 and L4 located on the front side of the transmitter indicate the power and signal conditions. Under normal operation, the LED status is "L1" orange blinking, "L2" off, "L3" green, and "L4" green. If a failure occurs, refer to the troubleshooting information for the transmitter within Table 18.

**Table 5: Status LEDs L1, L2, L3 and L4**

LED(s)	LED	Blue	Orange	Green
	L1		Link HDBaseT + HDMI activity blink	Link HDBaseT
	L2	Firmware failure		
	L3	Power failure		Power OK
	L4			PoH connected

### 5.4.2. Reset and Update Buttons

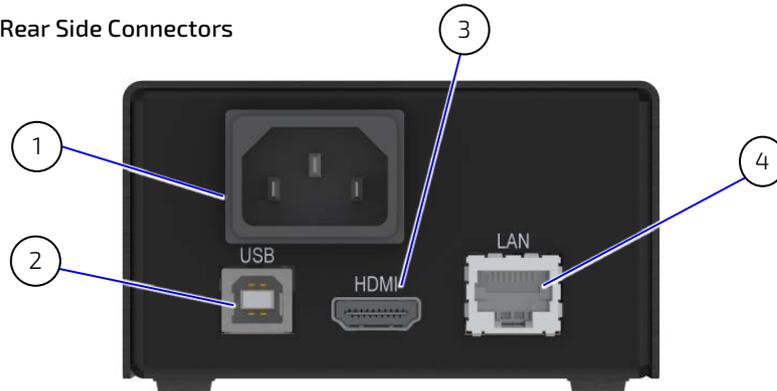
The buttons 1, 2, and 3 located on the front side of the transmitter update the firmware and/or reset the KONTRON TOUCHSCREEN. The three buttons are recessed to avoid being activated accidentally. To activate a recessed button, use an instrument with a diameter less than 1 mm such as the end of a pen or paper clip, to enter the small opening and press the recessed button.

**Table 6: Reset and Update Buttons**

Button(s)	Button	Function
	1	Infield and remote firmware updates
	2	Local transmitter infield firmware updates
	3	Reset

### 5.4.3. Transmitter Connections

Figure 15: Transmitter Rear Side Connectors



- |   |                       |   |           |
|---|-----------------------|---|-----------|
| 1 | Power connector 3-pin | 3 | HDMI 1.4b |
| 2 | USB 2.0 port          | 4 | LAN (PoH) |

#### 5.4.3.1. Power Connector

The mains power cable supplied in the cable kit connects to the transmitter’s 3-pin power connector and to the mains power outlet.

**▲WARNING**

Do not connect the mains power cable to the mains power outlet, until the touchscreen monitor and transmitter have been mounted and set up in their respective locations.

#### 5.4.3.2. HDMI Connector

The HDMI cable supplied in the cable kit connects to the transmitter’s HDMI connector and to the corresponding HDMI connector on the DELL XE3 PC (or similar PC).

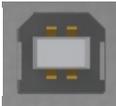
Table 7: HDMI Pin Assignment

HDMI 1.4b Type A	Pin	Signal Name	Pin	Signal name
	1	Data2+	2	GND
	3	Data2-	4	Data1+
	5	GND	6	Data1-
	7	Data0+	8	GND
	9	Data0-	10	Clock+
	11	GND	12	Clock-
	13	NC	14	NC
	15	DDC_CLK	16	DDC_DATA
	17	GND	18	Power
	19	Hot Plug Detect		

### 5.4.3.3. USB Connector

The USB cable supplied in the cable kit connects to the transmitter’s USB connector and to the corresponding USB connector on the DELL XE3 PC (or similar PC).

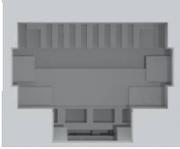
**Table 8: USB Port Pin Assignment**

USB 2.0 Type B	Pin	Signal Name
	1	VCC
	2	Data-
	3	Data+
	4	GND

### 5.4.3.4. LAN Connector

The touchscreen monitor’s factory installed CAT6a/CAT7 Ethernet (PoH) cable connects to the transmitter’s LAN (RJ45) connector.

**Table 9: Ethernet Connector Pin Assignment**

RJ45 Shielded for PoH (locked)	Pin	Signal Name	Description
	1	+BI DA	Bi-Directional pair A+
	2	-BI DA	Bi-Directional pair A-
	3	+BI DB	Bi-Directional pair B+
	4	+BI DC	Bi-Directional pair B-
	5	-BI DC	Bi-Directional pair C+
	6	-BI DB	Bi-Directional pair C-
	7	+BI DD	Bi-Directional pair D+
	8	-BI DD	Bi-Directional pair D-
	Shield	GND	

## 6/ Mounting

The touchscreen monitor and the transmitter are mounted separately in two different locations. The touchscreen monitor is C1D2 classified and certified to be mounted and operated in a C1D2 hazardous location/zone. The transmitter is mounted and operated in a non-hazardous location/zone only.

### 6.1. Mounting the Touchscreen Monitor

To mount the touchscreen monitor to a fixed location VESA mount use all four VESA pattern threaded holes (75 mm or 100 mm) and a suitable mounting bracket. Always use all four VESA pattern threaded holes and four M4 screws with an adequate screw length to firmly secure the touchscreen monitor. The required screw length varies depending on the mounting bracket's thickness.

#### ⚠ CAUTION

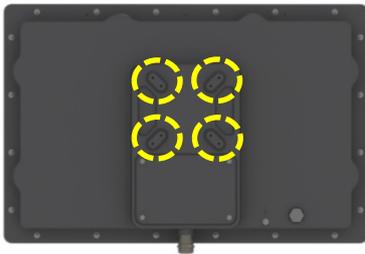
##### Do Not Mount Alone

Due to the touchscreen monitor's weight, mounting alone may result in product damage or personal injury.

#### NOTICE

Handle with care the screen may be damaged if dropped or bumped.

Figure 16: VESA Mount



To mount the touchscreen monitor in a C1D2 hazardous location/zone perform the following:

1. Connect a ground cable with suitable grounding ring to the threaded ground connection using a M4 screw with a minimum length of 8 mm. The ground cable must be long enough to reach the on-site electrical installation's ground connection.



The length of the M4 ground screw depends on the thickness of the user's grounding ring.

2. Insert four M4 screws through the VESA mounting bracket and the four VESA threaded holes (see Figure 16).
3. Tighten all four screws to secure the touchscreen monitor to the fixed location VESA mounting bracket.

#### ⚠ CAUTION

##### Verify Secure Mounting

Always mount using all four VESA threaded holes and using four screws long enough to secure the touchscreen monitor to the mounting bracket of the fixed location VESA mount.

## 6.2. Mounting the Transmitter

The transmitter stands on a Dell XE3 PC (or similar PC) with the ventilation openings facing upwards within a non-hazardous location/zone and has no special mounting requirements. It is prohibited to operate the transmitter in a hazardous location zone.

---

**▲ DANGER**

Explosive Hazard!

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

- The transmitter must only be operated in a non-hazardous environment.
- 

**▲ CAUTION**

Observe that ventilation openings are not covered

Obstructing ventilation openings hinders the airflow required for heat exchange and may cause overheating. The transmitter's ventilation openings must face upwards.

---

## 7/ Setting Up

The touchscreen monitor and transmitter are physically connected together using the factory installed CAT6a/CAT7 (PoH) Ethernet cable and switch on by connecting the transmitter to power.

### **CAUTION**

#### Ground Properly

The installation sites ground must meet the grounding requirements specified in your local, national and international region.

To set up the KONTRON TOUCHSCREEN, perform the following:

1. Mount the touchscreen monitor as described in Chapter 6.1: Mounting the Touchscreen Monitor.
2. Connect the free end of the ground cable connected to the touchscreen monitor, to the on-site electrical installation's ground connection.
3. Position the transmitter on the Dell XE3 PC (or similar PC) within a non-hazardous location/zone, as described in Chapter 6.2: Mounting the Transmitter.
4. Connect the free end of the touchscreen monitor's factory installed CAT6a/CAT7 (PoH) Ethernet cable to the transmitter's LAN connector.



The length of this CAT6A/CAT7 (PoH) Ethernet cable is pre-ordered as 25 ft., 50 ft. or 100 ft.

5. Connect the USB cable and HDMI cable supplied in the cable kit to the transmitter's USB and HDMI connectors and to the corresponding USB and HDMI connectors on the DELL XE3 PC (or similar PC).
6. Connect the cable kit's mains power cable to the transmitter only. Do not connect the other end of the mains power cable to the mains power outlet until ready to switch on the KONTRON TOUCHSCREEN, refer to Chapter 8/: Powering On.

### **WARNING**

Do not connect the transmitter' mains power cable to the power outlet, until the touchscreen monitor and transmitter have been mounted and set up in their respective locations and it is safe to switch on the power.

### 7.1. Calibrating

The KONTRON TOUCHSCREEN is factory calibrated. User calibration is not allowed.

If recalibration is required, refer to Chapter 11.2: Returning Defective Merchandise.

### 7.2. Firmware

The KONTRON TOUCHSCREEN is delivered ready for operation with firmware preinstalled. User installation of firmware is not required.

If the status LEDs indicate a firmware failure, refer to Chapter 11.1: Troubleshooting Guide.

## 8/ Powering On

Before switching on the KONTRON TOUCHSCREEN, read and observe the safety Information and instruction within this user guide.

### **⚠ WARNING**

Do not connect the transmitter' mains power cable to the power outlet, until the touchscreen monitor and transmitter have been mounted and set up in their respective locations and it is safe to switch on the power.

### **⚠ WARNING**

Do not power on or handle the product if there is any visible damage to the product or cables.

### **⚠ CAUTION**

Follow Proper Cabling Procedures  
Connect the ground cable first and mains power cable last.  
Only connect the cables supplied in the cable kit.

### **⚠ CAUTION**

Ground Properly  
The installation sites ground must meet the grounding requirements specified in your local, national and international region.

To switch on the KONTRON TOUCHSCREEN, perform the following:

1. Check that the transmitter's USB cable and HDMI cable are connected to the corresponding connectors on the Dell PC (or similar PC), and that the Dell PC (or similar PC) is operating.
2. Connect the transmitter's mains power cable to a mains power outlet.
3. The status LEDs indicate normal operation :  
Touchscreen monitor: system status LED = blue and dim, error status LED = off  
Transmitter: L1 = orange blinking, L2 = off, L3 = green, and L4 = green

To switch off the KONTRON TOUCHSCREEN, perform the following:

1. Disconnect the mains power cable from the mains power outlet or the transmitter's power connector, see Figure 14, Pos. 1.
2. All status LEDs are off.

## 9/ Maintaining

The KONTRON TOUCHSCREEN contains no user serviceable parts. Return the KONTRON TOUCHSCREEN to Kontron for maintenance and repair, refer to Chapter 11.2: Returning Defective Merchandise.

### 9.1. Cleaning the Touchscreen Monitor

Before cleaning the touchscreen monitor, switch off by disconnecting the mains power cable from the transmitter or the mains power outlet. When handling the touchscreen monitor, wear Nitrile gloves not thicker than 8 mils (0.2 mm) to prevent dirtying the screen.

Table 10: Cleaning the Touchscreen Monitor

Cleaning Requirements	Cleaning Action
When removing dirt from the screen's surface	Clean the surface of the screen using a screen cleaner and an absorbent non-abrasive soft cotton cloth.
When removing paint droplets or splashes from the screen's surface	Remove carefully from the screen using a razor blade.

### 9.2. Opening and Closing the Connector Cover

The connector cover must only be opened by a trained Kontron service employee, when located within a non-hazardous location/zone. The connector cover is sealed with a protection label and opening the connector cover will void your warranty.

**⚠ DANGER**

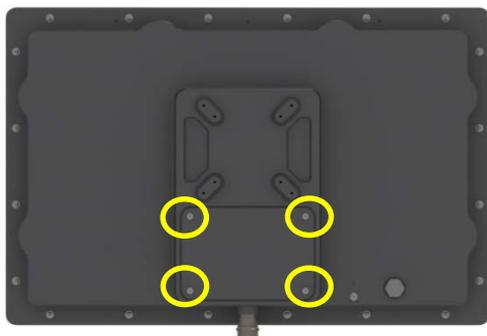


**Explosive Hazard!**

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

- The touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone.

Figure 17: Connector Cover Captive Screws



To open the connector cover, a trained Kontron service employee must perform the following:

1. Disconnect to the mains power cable from the mains power outlet or the transmitter's power connector to switch off the KONTRON TOUCHSCREEN and move the touchscreen monitor to a non-hazardous location/zone.
2. Loosen the connector cover's four captive (M4x12) screws.

**NOTICE**

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The connector cover's four captive screws remain attached to the connector cover when loosened. Do not try to physically remove the captive screws as this may damage the connector cover's seal.

---

3. Release and remove the connector cover from the rear side of the touchscreen monitor. Note that the connector cover is attached internally to the rear side of the touchscreen monitor by a lanyard. Do not remove the lanyard.

To close the connector cover, a trained Kontron service employee must perform the following:

1. Reseat the connector cover on to the rear side of the touchscreen monitor. Ensure the seal is properly in place to allow the connector cover to be seated properly.
2. Secure all four connector cover captive (M4x12) screws while taking care not to over tighten.

**NOTICE**

---

Over tightening may damage the connector cover's four captive screw's threaded seal.

---

## 10/ Specifications

### 10.1. Technical Specification

Table 11: Touchscreen Monitor Technical Specification

Touchscreen Monitor	Description
Monitor Size	21.5"
Active Area	476 mm x 268 mm
Monitor type	Color TFT-LCD
Resolution (pixels H x V)	1920x1080 Full-HD
Contrast Ratio	5000:1
Brightness	300 cd/m <sup>2</sup>
Viewing Angle	+/- 89° horizontal/vertical (Typ.)
Backlight Lifetime	50,000 h @ 77 °F (25°C) ambient temperature <sup>[1]</sup>
Colors	16.7 million (RGB 8-bits)
PCAP (Multitouch)	Supports up to 10 points, with transmission rate of 88% (Typ.)
Fastening	VESA mount (75 mm and 100 mm) patterns
Indicators	1x System status LED 1x Error status LED
Cooling	Fanless passive cooling

<sup>[1]</sup> Operating life means the brightness goes down to 50% of the initial brightness. This figure is estimated.

Table 12: Transmitter Technical Specification

Transmitter	Description	
Ethernet	1Gbit Ethernet Shielded for power and signal output	
USB	USB 2.0 Type B	
HDMI	HDMI 1.4b Type A Without locking mechanism	
Power	3-pin power connector 100 V to 240 V	
Status LEDs (L1, L2, L3, L4)	L1	ORANGE blinking = Link HDBaseT + HDMI activity (normal operation) GREEN = Link HBaseT
	L2	RED = FW bad OFF = (normal operation)
	L3	RED = PWR bad GREEN = Power OK (normal operation)
	L4	GREEN = Power over Ethernet connected (normal operation) Blinking sequence = 1 blink short circuit, 2 blinks over current and 4 blinks Input voltage <47 V
Recessed Buttons (1, 2, 3)	1	Infield and remote firmware updates
	2	Local transmitter infield firmware updates
	3	Reset function
Cooling	Fan less with ventilation opening for heat dissipation	

## 10.2. Environmental Specification

Table 13: Environmental Specification KONTRON TOUCHSCREEN

KONTRON TOUCHSCREEN		Description
Temperature	(Operating)	+32°F to +104°F (0°C to +40°C) Ambient: +32°F to +122°F (0°C to +50°C max.)
	(Non-Operating)	+32°F to +140°F (0°C to +60°C)
Relative Humidity		5% to 90% RH, non-condensing
Altitude (operating)		10,000 ft. (3048 m)
Environmental Protection		EN 60529 2014-09      IP54 (touchscreen monitor) IP20 (transmitter)
		NEMA 250 Type 4 (touchscreen monitor)
Shock (IEC 60068-2-27)	(Operating)	10 g, 11 ms (half sine)
	(Non-Operating)	
Vibration (IEC 60068-2-6)	(Operating)	10 Hz to 500 Hz, 1g, 3 axis
	(Non-Operating)	

## 10.3. Mechanical Specification

Table 14: Mechanical Specification Touchscreen Monitor

Touchscreen Monitor	Description
Dimensions (W x H x D)	22.28" x 14.66" x 2.73" (566 mm x 372.4 mm x 69.3 mm)
Weight	19.84 lbs. (9kg) approx.
Construction	Front side: Glass with sealing gasket and chemically hardened Rear side: case material, die casted aluminum alloy.
Mounting	VESA patterns (75 mm or 100mm)

Table 15: Mechanical Specification Transmitter

Transmitter	Description
Dimensions (W x H x D) (without rubber feet)	3.54" x 1.97" x 10.24" (90 mm x 50 mm x 260mm)
Weight	1.36 kg (3 lbs.) max.
Construction	Sheet metal
Color	Matt black
Mounting	4x Rubber feet Fits on top of DELL XE3 PC or similar small tower

### 10.3.1. Dimension Diagram

Figure 18: Touchscreen Monitor Dimensions

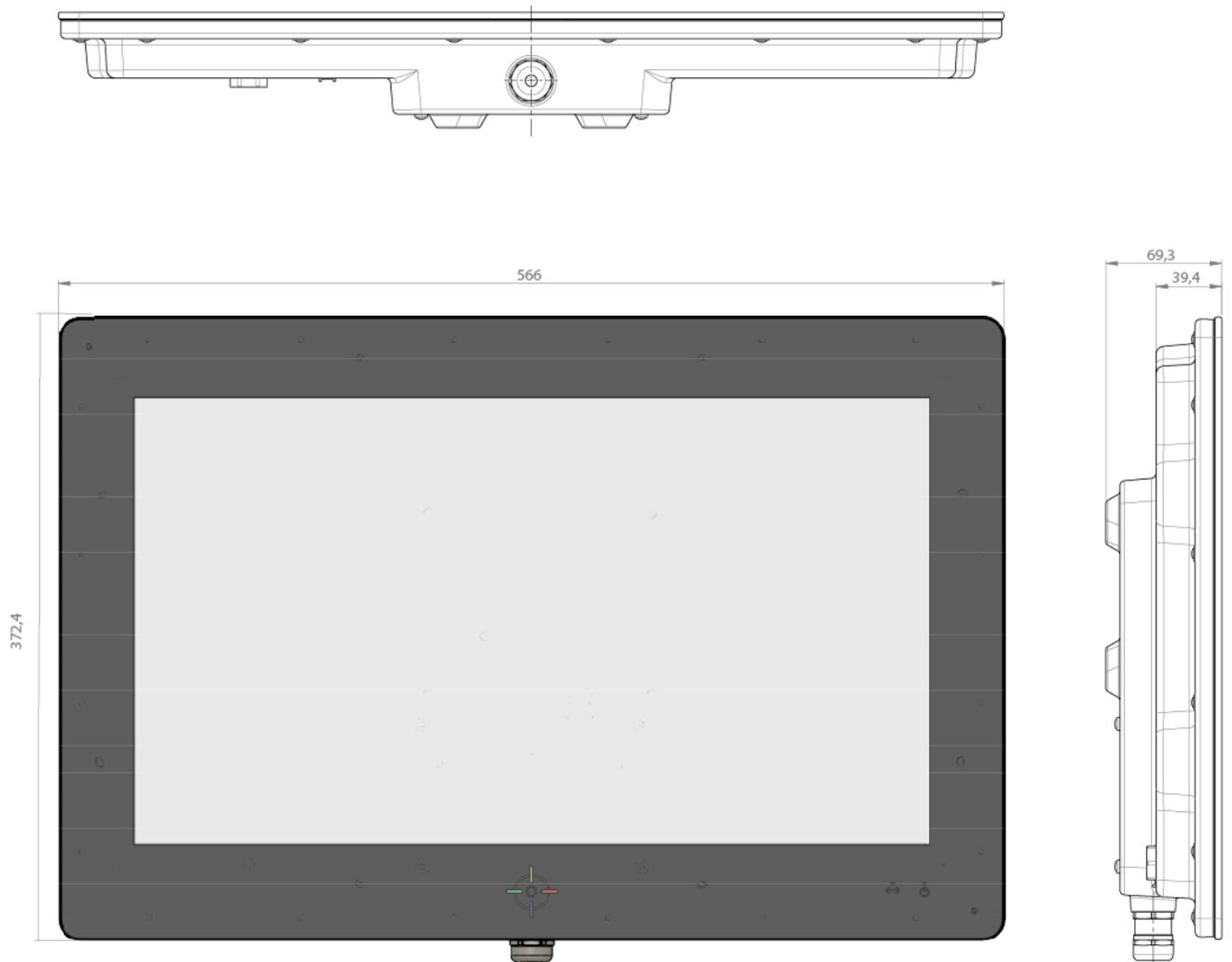
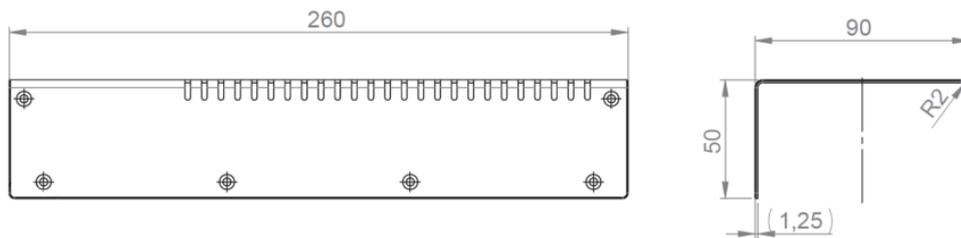


Figure 19: Transmitter Dimensions



## 10.4. Power Specification

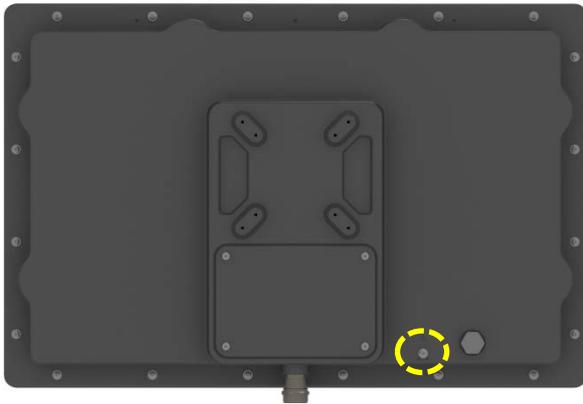
The transmitter connects to the mains power outlet using the mains power cable supplied in the cable kit. The touchscreen monitor receives power from the factory installed CAT6a/CAT7 (PoH) Ethernet cable that transmits power (56 VDC and 1.5 A) in conjunction with Ethernet and USB signals over a single Ethernet cable.

Table 16: Electrical Specification Transmitter

Electrical Specification	Description
Input Voltage Range	100 VAC to 240 VAC ( 50Hz/60 Hz)
Input Current	1.8 A (@ 115 VAC max.)
Input Protection	Internal 3.15 A fuse in line and neutral

### 10.4.1. Ground Requirements

Figure 20: Ground Connection



Connect the touchscreen monitor's ground cable to an installation site's ground that meets the grounding requirements specified in the user's local, national and international region:

- ▶ USA in accordance with NEC NFPA 70, article 500, 501, 504, 505
- ▶ Canada in accordance with CEC, part 1

Additionally, the resistance between ground and the touchscreen monitor should be less than one ohm.

---

**⚠ CAUTION** Ground Properly  
 The installation sites ground must meet the ground requirements specified in this user guide and in your local, national and international region.

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**⚠ CAUTION** A ground cable is not supplied with the KONTRON TOUCHSCREEN. It is the user's responsibility to supply a ground cable of adequate length and with a suitable grounding ring; that complies with all applicable local, national and international grounding requirements.

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## 11/Technical Support

Before contacting Kontron for technical support, consult Chapter 11.1: Troubleshooting Guide, to find out about a possible quick solution. If the troubleshooting guide does not contain a solution for the technical problem, contact Kontron's Support department (<http://www.kontron.com/support>).

For support, contact our Technical Support department using:

- ▶ E-mail: support@kontron.com
- ▶ Phone: +49-821-4086-888

Make sure you have the following product identification information available when you call:

- ▶ Product ID Number (PN)
- ▶ Serial Number (SN)




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**Product Identification Information is available on the type label attached to the touchscreen monitor and transmitter.**

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Be ready to explain the nature of your problem to the service technician.

### 11.1. Troubleshooting Guide

**⚠ DANGER**



**Explosive Hazard!**

Risk of explosion. Due to electrical sparks present behind the connector cover in an operating environment where flammable gases may exist, such as defined by C1D2.

- The touchscreen monitor's connector cover must only be opened by trained Kontron service employees when known to be in a non-hazardous location/zone.
  - The transmitter must only be operated in a non-hazardous environment.
- 

If a problem occurs, perform the following:

1. Restart the KONTRON TOUCHSCREEN by disconnecting the mains power cable from rear side of the transmitter and after the KONTRON TOUCHSCREEN has switched off reconnect the mains power cable.
2. Reset the KONTRON TOUCHSCREEN by pressing the reset and update button "3". To press the reset and update button "3", use an instrument with a diameter under 1 mm such as the end of a pen or paper clip, to enter the small opening.
3. Check the status LEDs on the touchscreen monitor and transmitter and consult the troubleshooting guide's suggestions in Table 17 and Table 18 for a possible solution.
4. Contact Kontron's Support department if the troubleshooting suggestions do not contain a solution for the technical problem.

Table 17: Troubleshooting Touchscreen Monitor

Touchscreen Monitor	
LED Status	Action
BLUE LED (breathing)	<p>This failure indicates a problem with the HDMI connection or source.</p> <p>Start HDMI signal check process:</p> <ol style="list-style-type: none"> <li>1. Check if the HDMI cable is connected to the transmitter connection marked "HDMI".</li> <li>2. Check if the HDMI cable is connected to the signal source (Dell PC or similar PC) "HDMI out".</li> <li>3. Check for damage to the HDMI cable.</li> <li>4. Check if the signal source (Dell PC or similar PC) is functional.</li> </ol>
RED LED (3 blinks/5 sec)	<p>This failure indicates a problem with the touchscreen monitor's firmware. The firmware may be not fully updated or recovered or may also be corrupt.</p> <p>Start firmware (FW) update process:</p> <ol style="list-style-type: none"> <li>1. Check process of firmware update with the supplier.</li> <li>2. Optional: Return the product to Kontron with the failure description "<b>BAD FW</b>", refer to Chapter 11.2: Returning Defective Merchandise.</li> <li>3. Optional: Kontron supports "online Firmware update" with Technical Support department.</li> </ol>
RED LED (1 blink/5 sec)	<p>This failure indicates a problem with the factory installed CAT6a/CAT7 (PoH) Ethernet cable connected to the touchscreen monitor and transmitter.</p> <p><b>All investigations must be performed outside the Hazardous location/zone!</b></p> <p>Start link check process:</p> <ol style="list-style-type: none"> <li>1. Switch off KONTRON TOUCHSCREEN® immediately by removing the mains power cable from the transmitter's rear side.</li> <li>2. Remove the touchscreen monitor from hazardous location/zone immediately.</li> <li>3. Check if the CAT6a/CAT7 Ethernet cable is connected in the transmitter's "LAN".</li> <li>4. Check if the CAT6a/CAT7 Ethernet cable is damaged.</li> <li>5. If the failure still occurs, the problem may be inside the touchscreen monitor (NOTE: It is prohibited to open the connection cover to check the connection). Return the faulty product to Kontron with the failure description "<b>no LINK</b>", refer to Chapter 11.2: Returning Defective Merchandise.</li> </ol>

Table 18: Troubleshooting Transmitter

Transmitter	
LED Status	Action
L1 GREEN	<p>This failure indicates a problem with the HDMI connection or HDMI source. The link may be connected but there is no HDMI signal.</p> <p>Start HDMI signal check process:</p> <ol style="list-style-type: none"> <li>1. Check if the HDMI cable is connected in the transmitter connector marked "HDMI".</li> <li>2. Check if the HDMI cable is connected in the signal source (Dell PC or similar PC) "HDMI out".</li> <li>3. Check for damage to the HDMI cable.</li> <li>4. Check if the signal source (Dell PC or similar PC) is functional.</li> </ol>
L2 RED	<p>This failure indicates a problem with the touchscreen monitor's firmware. The firmware may be not fully updated or recovered or may also be corrupted.</p> <p>Start firmware (FW) update process:</p> <ol style="list-style-type: none"> <li>1. Check process of a firmware update with supplier.</li> <li>2. Optional: Send the product back to Kontron with failure description "<b>BAD FW</b>".</li> <li>3. Optional: Negotiate with supplier support of "online firmware update" with the manufacture's Technical Support department.</li> </ol>
L3 RED	<p>This failure indicates a problem with the power input.</p> <p><b>All investigations must be performed outside the Hazardous location/zone!</b></p> <p>Start power check process:</p> <ol style="list-style-type: none"> <li>1. Switch off the KONTRON TOUCHSCREEN® immediately by removing the mains power cable from the transmitter's rear side.</li> <li>2. Remove the touchscreen monitor from the hazardous location/zone immediately.</li> <li>3. Check for damage to the CAT6a/CAT7 (PoH) Ethernet cable.</li> <li>4. If the failure still occurs, return the faulty product to Kontron with the failure description "<b>PWR BAD</b>", refer to Chapter 11.2: Returning Defective Merchandise.</li> </ol>
L4 (1 Blink/period)	<p>This failure indicates a problem with the power input and the integrated power supply -Short Circuit</p> <p><b>All investigations must be performed outside the Hazardous location/zone!</b></p> <p>Start power check process:</p> <ol style="list-style-type: none"> <li>1. Switch off the KONTRON TOUCHSCREEN® immediately by removing the mains power cable from the transmitter's rear side.</li> <li>2. Remove the touchscreen monitor from the hazardous location/zone immediately.</li> <li>3. Check for damage to the mains power cable.</li> <li>4. If the failure still occurs, return the faulty product to Kontron with the failure description "<b>PSU BAD</b>", refer to Chapter 11.2: Returning Defective Merchandise.</li> </ol>

Transmitter	
LED Status	Action
L4 (2 Blinks/period)	<p>This failure indicates a problem with the power input and the integrated power supply - Current imbalance Over Current.</p> <p><b>All investigations must be performed outside the Hazardous location/zone!</b></p> <p>Start power check process:</p> <ol style="list-style-type: none"> <li>1. Switch off the KONTRON TOUCHSCREEN® immediately by removing the mains power cable from the transmitter's rear side.</li> <li>2. Remove the touchscreen monitor from the hazardous location/zone immediately.</li> <li>3. Check for damage to the mains power cable.</li> <li>4. If the failure still occurs, return the faulty product to Kontron with the failure description "<b>PWR BAD</b>", refer to Chapter 11.2: Returning Defective Merchandise.</li> </ol>
L4 (4 Blinks/period)	<p>This failure indicates a problem with the power input and the integrated power supply -Input Voltage &lt;47 V.</p> <p><b>All investigations must be performed outside the Hazardous location/zone!</b></p> <p>Start power check process:</p> <ol style="list-style-type: none"> <li>1. Switch off the KONTRON TOUCHSCREEN immediately by removing the mains power cable from the transmitter's rear side.</li> <li>2. Remove the touchscreen monitor from the hazardous location/zone immediately.</li> <li>3. Check for damage to the mains power cable.</li> <li>4. If the failure still occurs, return the faulty product to Kontron with the failure description "<b>PWR BAD</b>", refer to Chapter 11.2: Returning Defective Merchandise.</li> </ol>

## 11.2. Returning Defective Merchandise

All returned items must have a Return of Material Authorization (RMA) number assigned exclusively by Kontron. Kontron cannot be held responsible for any loss or damage caused to the equipment received without an RMA number. The buyer accepts responsibility for all freight charges for the return of goods to Kontron's designated facility. Kontron will pay the return freight charges back to the buyer's location in the event that the equipment is repaired or replaced within the stipulated warranty period.




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**All items returned for repair must be packed properly for shipping, considering shock and EDS. Non-proper packaging will be considered as customer caused fault and cannot be accepted as warranty repairs.**

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To return a KONTRON TOUCHSCREEN to Kontron, follow the standard RMA procedure. For more information visit Kontron's RMA website: <http://www.kontron.com/support-and-services/support/rma-information> and click on your regional location.

## 12/ Warranty

The warranty period is limited to 24 months, starting 2 months after shipment. Claims are at Kontron's discretion and limited to the defect being of a material nature.

In order to maintain Kontron's product warranty, this product must not be opened, damaged, altered or modified in any way. Changes or modifications to the product, that are not explicitly approved by Kontron or received from Kontron Support as a special handling instruction, will void your warranty.



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**A protection label closes the connector cover.  
Opening the connector cover will void your warranty.**

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### 12.1.1. Limitation/Exemption from Warranty Obligation

In general, Kontron shall not be required to honor the warranty, even during the warranty period, and shall be exempted from the statutory accident liability obligations in the event of damage caused by misuse or force majeure to the product and failure to observe the following:

- ▶ Failure to observe safety instructions within this user guide
- ▶ Failure to observe warning labels on the product

Due to their limited service life, parts that by their nature are subject to a particularly high degree of wear (wearing parts) are excluded from the warranty beyond that provided by law.

## Appendix: List of Acronyms

Table 19: List of Acronyms

<b>ANSI</b>	American National standards Institute
<b>ATEX</b>	ATmosphere EXplosive
<b>C1D2</b>	Class1, Division 2
<b>CEC®</b>	Canadian Electrical Code
<b>DP</b>	DisplayPort
<b>DVI</b>	Digital Video Interface
<b>EEPROM</b>	Electrically Erasable Programmable Read Only Memory
<b>EMC</b>	Electro Magnetic Compatibility
<b>EMI</b>	Electro Magnetic Interference
<b>ESD</b>	Electro Static Discharge
<b>FCC</b>	Federal Communications Commission
<b>Flash</b>	FNon-Volatile Memory
<b>GND</b>	Ground
<b>GUI</b>	Graphic User Interface
<b>HASLOC</b>	Hazardous Location
<b>HDBase T</b>	High-Definition video Base T
<b>HDCP</b>	High-bandwidth Digital Content Protection
<b>HMI</b>	Human Machine Interface
<b>I2C</b>	Inter IC bus
<b>I/O</b>	Input / Output
<b>ID</b>	Identification
<b>ICES</b>	Interference-Causing Equipment Standard
<b>IEEE</b>	Institute of Electrical and Electronic Engineering

<b>ITE</b>	Information Technology Equipment
<b>LED</b>	Light Emitting Diode
<b>MTBF</b>	Mean Time Between Failures
<b>N.C</b>	Not connected
<b>NEC®</b>	National Electrical Code
<b>NFPA</b>	National Fire Protection Association
<b>OS</b>	Operating System
<b>On</b>	On Screen Display
<b>PCB</b>	Printed Circuit Board
<b>PoE</b>	Power over Ethernet
<b>PoH</b>	Power over HDBaseT
<b>PSU</b>	Power Supply Unit
<b>ROHS II</b>	Restriction of Hazardous Substances
<b>REACH</b>	Registration, Evaluation, Authorization and Restriction of Chemicals
<b>RFID</b>	RFID Radio Frequency Identification
<b>RMA</b>	Return of Material Authorization
<b>RS-232</b>	Recommended Standard 232
<b>µC</b>	Micro Controller
<b>TTL</b>	TTL Transistor-Transistor-Logic
<b>USB</b>	USB Universal
<b>VESA</b>	Video Electronics Standard Association
<b>WEEE</b>	Waste Electrical and Electronic Equipment



## About Kontron

Kontron is a global leader in IoT/Embedded Computing Technology (ECT). As a part of technology group S&T, Kontron, together with its sister company S&T Technologies, offers a combined portfolio of secure hardware, middleware and services for Internet of Things (IoT) and Industry 4.0 applications. With its standard products and tailor-made solutions based on highly reliable state-of-the-art embedded technologies, Kontron provides secure and innovative applications for a variety of industries. As a result, customers benefit from accelerated time-to-market, reduced total cost of ownership, product longevity and the best fully integrated applications overall.

For more information, please visit: [www.kontron.com](http://www.kontron.com)

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## Global Headquarters

### Kontron S&T AG

Lise-Meitner-Str. 3-5  
86156 Augsburg  
Germany  
Tel.: +49 821 4086-0  
Fax: +49 821 4086-111  
[info@kontron.com](mailto:info@kontron.com)