USER GUIDE

FlatClient ECO and FlatClient PRO

Doc. Rev. 1.92

Doc. ID: 1061-6259

This page has been intentionally left blank

FLATCLIENT ECO AND FLATCLIENT PRO - USER GUIDE

Disclaimer

Kontron would like to point out that the information contained in this user guide may be subject to alteration, particularly as a result of the constant upgrading of Kontron products. This document does not entail any guarantee on the part of Kontron with respect to technical processes described in the user guide or any product characteristics set out in the user guide. Kontron assumes no responsibility or liability for the use of the described product(s), conveys no license or title under any patent, copyright or mask work rights to these products and makes no representations or warranties that these products are free from patent, copyright or mask work right infringement unless otherwise specified. Applications that are described in this user guide are for illustration purposes only. Kontron makes no representation or warranty that such application will be suitable for the specified use without further testing or modification. Kontron expressly informs the user that this user guide only contains a general description of processes and instructions which may not be applicable in every individual case. In cases of doubt, please contact Kontron.

Kontron AG

Lise-Meitner-Str. 3-5
86156 Augsburg
Germany
www.kontron.com

Intended Use

THIS DEVICE 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, 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
1.6	Initial Issue	2017-July-12	hjs
1.7	Added Skylake and Kaby Lake variants	2018-June-29	hjs
1.8	Changed the 15" built-in mechanical diagrams	2018-Oct-02	CW
1.9	Added 10.1", 12.2" and 13.3" chapter, added Apollo Lake variants, changed Power-in to 12-30VDC, Added French safety instructions	2019-Mar-21	hjs
1.92	Foto optimization in Table 2: FlatClient ECO and PRO Scope of Delivery	2019-Jul-16	hjs

Terms and Conditions

Kontron warrants products 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 products worldwide and declares 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.

Customer Comments

If you have any difficulties using this user guide, discover an error, or just want to provide some feedback, contact Kontron support. Detail any errors you find. We will correct the errors or problems as soon as possible and post the revised user guide on our website.

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.
	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 damage to your material.
	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 inform of the risk of exposure to laser beam and light emitting devices (LEDs) from an electrical device. Eye protection per manufacturer notice shall review before servicing.
	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. It was also 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 of the correct operation of your new Kontron product, you are requested to conform with the following guidelines.

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 disconnect device.

⚠CAUTION

Warning

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

⚠CAUTION

Electric Shock!

Before installing a non hot-swappable Kontron product into a system always ensure that your mains power is switched off. This also applies to the installation of piggybacks. Serious electrical shock hazards can exist during all installation, repair, and maintenance operations on this product. Therefore, always unplug the power cable and any other cables which provide external voltages before performing any work on this product.

Earth ground connection to vehicle's chassis or a central grounding point shall remain connected. The earth ground cable shall be the last cable to be disconnected or the first cable to be connected when performing installation or removal procedures on this product.

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.

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 work stations. Where a safe work station 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.

It is particularly important to observe standard anti-static precautions when changing piggybacks, ROM devices, jumper settings etc. If the product contains batteries for RTC or memory backup, ensure that the product is not placed on conductive surfaces, including anti-static plastics or sponges. They can cause short circuits and damage the batteries or conductive circuits on the product.

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 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 or connected to systems that fulfill all necessary technical and specific environmental requirements. This also applies to the operational temperature range of the specific board version that must not be exceeded. If batteries are present, their temperature restrictions must be taken into account.

In performing all necessary installation and application operations, only follow the instructions supplied by the present 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. See 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.

WEEE Compliance

The Waste Electrical and Electronic Equipment (WEEE) Directive aims to:

- Reduce waste arising from electrical and electronic equipment (EEE)
- Make producers of EEE responsible for the environmental impact of their products, especially when the product become waste
- Encourage separate collection and subsequent treatment, reuse, recovery, recycling and sound environmental disposal of EEE
- Improve the environmental performance of all those involved during the lifecycle of EEE

Environmental protection is a high priority with Kontron.

Kontron follows the WEEE directive

You are encouraged to return our products for proper disposal.

Table of Contents

Symbols 6
For Your Safety 7
High Voltage Safety Instructions 7
Special Handling and Unpacking Instruction 7
Lithium Battery Precautions 8
General Instructions on Usage 8
Quality and Environmental Management 8
Disposal and Recycling 8
WEEE Compliance 8
Table of Contents 9
List of Tables 11
List of Figures 12
1/ Introduction 13
2/ General Safety Instructions for IT Equipment 14
2.1. General Safety Instructions 14
2.2. UL Canada: Instructions générales de sécurité 14
2.3. Cleaning of Display 15
2.4. Electromagnetic Compatibility EU 16
2.5. Electrostatic Discharge (ESD) 16
2.5.1. Grounding Methods 16
3/ Scope of Delivery 17
3.1.1. Type Label and Product Identification 19
4/ Product Description 20
4.1. Product View 20
5/ Technical Data and Environmental Specification 22
6/ Order Information 27
7/ Mechanical specification 29
7.1. 10.1“ Built-in Variant 29
7.1.1. 10.1"Panel Cutout 29
7.2. 10.4“ Built-in Variant 30
7.2.1. 10.4" Panel Cutout 30
7.3. 10.4“ Full-metal Variant 31
7.4. 12.1“ Built-in Variant WXGA (1280x800) 32
7.4.1. 12.1" WXGA Panel Cutout 32
7.5. 12.1“ Full-metal Variant WXGA (1280x800) 33
7.6. 12.1“ Built-in Variant SVGA and XGA (800x600, 1024x768) 34
7.6.1. 12.1" Panel Cutout 34
7.7. 12.1“ Full-metal Variant SVGA and XGA (800x600, 1024x768) 35
7.8. 13.3“ Built-in Variant 36
7.8.1. 13.3" Panel Cutout 36
7.9. 13.3“ Full-metal Variant 37
7.10. 15.0“ Built-in Variant 38
7.10.1. 15.0" Panel Cutout 38
7.11. 15.0“ Full-metal Variant 39
7.12. 15.6“ Built-in Variant 40
7.12.1. 15.6" Panel Cutout 40

7.13. 15.6" Full-metal Variant 41
7.14. 17.0" Built-in Variant 42
7.14.1. 17.0" Panel Cutout 42
7.15. 17.0" Full-metal Variant 43
7.16. 18.5" Built-in Variant (HD and FullHD) 44
7.16.1. 18.5" Panel Cutout 44
7.17. 18.5" Full-metal Variant (HD and FullHD) 45
7.18. 19.0" Built-in Variant 46
7.18.1. 19.0" Panel Cutout 46
7.19. 19.0" Full-metal Variant 47
7.20. 21.5" Built-in Variant 48
7.20.1. 21.5" Panel Cutout 48
7.21. 21.5" Full-metal Variant 49
7.22. 23.8" Built-in Variant 50
7.22.1. 23.8 "Panel Cutout 50
7.23. 23.8" Full-metal Variant 51
8/ Connectors 52
8.1. FlatClient ECO Intel BayTrail J1900 52
8.1.1. Input Power Connector 52
8.1.2. Power-Switch and LEDs 53
8.1.3. USB2.0 Type-A Connector 53
8.1.4. USB3.0 Type-A Connector 53
8.1.5. GbE RJ-45 Connector 54
8.1.6. LED Diagram of LAN Connectors 54
8.1.7. HDMI Connector 54
8.1.8. DB15 VGA Connector 55
8.1.9. COM2 RS-232/422/485 (via internal cable connection to CN16, Option) 55
8.2. FlatClient ECO Apollo Lake N4200 56
8.2.1. Input Power Connector 56
8.2.2. Power-Switch and LEDs 57
8.2.3. USB2.0 Type-A Connector 57
8.2.4. USB3.0 Type-A Connector 57
8.2.5. GbE RJ-45 Connector 58
8.2.6. LED Diagram of LAN Connectors 58
8.2.7. HDMI Connector 58
8.2.8. DB15 VGA Connector 59
8.2.9. COM2 RS-232/422/485 (via internal cable connection to CN16, Option) 59
8.3. FlatClient PRO Haswell 60
8.3.1. Input Power Connector 60
8.3.2. Power-Switch and LEDs 61
8.3.3. USB3.0 Type-A Connector 61
8.3.4. GbE RJ-45 Connector 61
8.3.5. LED Diagram of LAN Connectors 62
8.3.6. DisplayPort Connector 62
8.3.7. COM2 RS-232/422/485 (via internal cable connection to CN16, Option) 62
8.4. Flatclient PRO Skylake/Kaby Lake 63
8.4.1. Input Power Connector 63
8.4.2. Power-Switch and LEDs 64
8.4.3. USB3.0 Type-A Connector 64

8.4.4. GbE RJ-45 Connector 64
8.4.5. LED Diagram of LAN Connectors 65
8.4.6. DisplayPort Connector 65
8.4.7. HDMI Connector 66
9/ Installation and Start 67
9.1. Mounting Instructions (built-in-variant only) 67
9.2. Startup Procedure 68
10/ Technical Support 69
10.1. Warranty 69
10.2. Returning Defective Merchandise 70
Appendix A: List of Acronyms 72
About Kontron 73

List of Tables

Table 1: Electromagnetic Compatibility CE 16
Table 2: FlatClient ECO and PRO Scope of Delivery 17
Table 3: FlatClient ECO and PRO Accessories 17
Table 4: Technical Data FlatClient ECO and FlatClient PRO Line 22
Table 5: Technical Data FlatClient ECO and FlatClient PRO Line 22
Table 6: Technical Data FlatClient ECO and FlatClient PRO Line 23
Table 7: Technical Data FlatClient ECO and FlatClient PRO Line 23
Table 8: Technical Data for FlatClient ECO Line with BayTrail and Braswell processors 24
Table 9: Technical Data FlatClient ECO Line with Apollo Lake Processors 24
Table 10: Technical Data FlatClient PRO Line with Haswell and Broadwell processors 25
Table 11: Technical Data FlatClient PRO Line with Skylake and Kaby Lake CPU 25
Table 12: Environmental Specification FlatClient ECO and FlatClient PRO Line 26
Table 13: CE Directives and standards CE Directives 26
Table 14: Power LED 53
Table 15: Drive Activity 53
Table 16: Pinout USB 2.0 53
Table 17: Pinout USB 2.0 53
Table 18: Pinout GbE RJ-45 Connector 54
Table 19: Pinout HDMI Connector 54
Table 20: Pinout VGA Connector 55
Table 21: Pinout RS-232/422/485 Connector 55
Table 22: Power LED 57
Table 23: Drive Activity 57
Table 24: Pinout USB 2.0 57
Table 25: Pinout USB 2.0 57
Table 26: Pinout GbE RJ-45 Connector 58
Table 27: Pinout HDMI Connector 58
Table 28: Pinout VGA Connector 59
Table 29: Pinout RS-232/422/485 Connector 59
Table 30: Power LED 61
Table 31: Drive Activity 61
Table 32: Pinout USB3.0 Connector 61
Table 33: Pinout GbE RJ-45 Connector 61
Table 34: Pinout DisplayPort Connector 62
Table 35: Pinout RS-232/422/485 Connector 62
Table 36: Power LED 64
Table 37: Drive Activity 64
Table 38: Pinout USB 2.0 64
Table 39: Pinout GbE RJ-45 Connector 64

Table 40: Pinout DisplayPort Connector 65
Table 41: Pinout HDMI Connector 66

List of Figures

Figure 1: FlatClient ECO and PRO 13
Figure 2: Type Label 19
Figure 3: Front View Description FlatClient ECO Full-metal 20
Figure 4: Bottom View Description – FlatClient ECO (BayTrail) Full-metal variant (Details of IOs capabilities can be found in 8/ for all CPU platforms) 21
Figure 5: Bottom View Description – FlatClient PRO (Braswell) built-in variant variant (Details of IOs capabilities can be found in 8/ for all CPU platforms) 21
Figure 6: Interfaces for Panel PC FlatClient ECO variant 52
Figure 7: Input Power 52
Figure 8: Mating Connector 52
Figure 9: Power-Switch and LEDs 53
Figure 10: Interfaces for Panel PC FlatClient Apollo Lake variant 56
Figure 11: Input Power 56
Figure 12: Mating Connector 56
Figure 13: Power-Switch and LEDs 57
Figure 14: Interfaces for Panel PC PRO variant 60
Figure 15: Input Power 60
Figure 16: Mating Connector 60
Figure 17: Power-Switch and LEDs 61
Figure 18: Interfaces for Panel PC FlatClient PRO Skylake/Kaby Lake variant 63
Figure 19: Input Power 63
Figure 20: Mating Connector 63
Figure 21: Power-Switch and LEDs 64

1/ Introduction

With its FlatClient Monitor series, Kontron offers high mechanical flexibility with respect to the design. It can be used both as a full-metal solution with VESA 75/75 respectively 100/100 as well as a built-in solution. The front comes with standard IP65 protection, with the full-metal variant offering a standard IP54. The built-in version is installed directly on the machine or in a command or control console.

The system is service-friendly for the user and is designed for a long life cycle thanks to carefully selected components from renowned manufacturers.

Figure 1: FlatClient ECO and PRO

2/ General Safety Instructions for IT Equipment

Please read this chapter carefully and observe the instructions for your own safety, and correct use of the product. This chapter also contains information on approval and interference suppression of your product. Observe the warnings and instructions on the product and in the user guide.

2.1. General Safety Instructions

In order to maintain condition and ensure safe operation, observe the instructions and warnings contained in this user guide.

- The product must be used in accordance with the instructions for use.
- The electrical installations in the room must correspond to the requirements of the local (country-specific) regulations.
- Take care that there are no cables, particularly power cables, in areas where persons can trip over them.
- Only use the power cord supplied.
- Do not use damaged power cords.
- For DC power connection:

  The DC power source should be able to be switched off and switched on via an isolating switch.
  The unit is only completely disconnected from the DC main power source, when the DC power cord is disconnected either from the power source or the unit. Therefore, the DC power cord and its connectors must always remain easily accessible.
- For AC power connection via external AC/DC adapter:

  The main power cable of the external AC/DC adapter serves as a disconnecting device. For this reason, the outlet of the AC power source must be located near the product and be easily accessible.
- Do not place the product in direct sunlight, near heat sources or in a damp place. Make sure the product has adequate ventilation.
- Only devices and components that fulfill the requirements of an SELV circuit (safety extra low voltage) in accordance with EN60950 may be connected to the interfaces of the system.
- All plugs on the connection cables must be screwed or locked to the housing.
- The product generates heat during operation. Make sure it is adequately ventilated. Do not cover the air intake and exhaust openings of the product.
- Maintenance or repair on the open product may only be carried out by qualified personnel authorized by Kontron, that are aware of the associated dangers.
- When accessing internal components the product must be switched off and disconnected from the power source.
- The ext. supply shall meet the criteria for SELV (Safety Extra-low voltage) and <240 VA acc. UL 60950-01.

2.2. UL Canada: Instructions générales de sécurité

L'alimentation externe doit répondre aux critères TBTS (très basse tension de sécurité) et être < 240 VA suivant UL 60950-1.
L'utilisation n'est plus sûre si l'appareil présente des dommages visibles ou s'il ne fonctionne plus. Dans ces cas l'appareil doit être arrêté et protégé contre toute mise en service involontaire.

Pour votre propre sécurité et pour une utilisation conforme de l'appareil, veuillez lire cette section avec soin et observer les instructions. Le chapitre contient aussi des indications sur l'approbation et la suppression des interférences de votre appareil. Respecter les avertissements et instructions figurant sur l'appareil et dans le manuel. Afin de maintenir un état conforme et garantir un fonctionnement sûr, l'utilisateur doit considérer les instructions et avertissements figurant dans ce manuel.

- L'appareil doit être utilisé en accord avec les instructions d'utilisation.

- Les installations électriques du local doivent être conformes aux exigences des réglementations locales (spécifiques à chaque pays).
- Bien veiller à ce qu'il n'y ait aucun câble, en particulier aucun câble d'alimentation, dans les zones où des personnes peuvent trébucher dessus.
- Utiliser uniquement le cordon d'alimentation fourni. Ne pas utiliser de câble d'alimentation détérioré ou endommagé.
- Pour la connexion d'alimentation CC

La source d'alimentation CC doit pouvoir être coupée et mise en marche via un commutateur d'isolation. L'appareil n'est entièrement déconnecté de la source d'alimentation principale CC que lorsque le cordon d'alimentation CC est déconnecté de la source d'alimentation ou de l'unité. Par conséquent, le cordon d'alimentation CC et ses connecteurs doivent toujours rester facilement accessibles.

- Pour la connexion CA via un adaptateur externe CA/CC

Le câble d'alimentation principal de l'adaptateur externe CA/CC sert de dispositif de sectionnement. Pour cette raison, la sortie de la source d'alimentation CA doit être située à proximité de l'appareil et être facilement accessible.

- Ne pas placer l'appareil en plein soleil, à proximité d'une source de chaleur ou dans un endroit humide. S'assurer que l'appareil dispose d'une ventilation adéquate.
- Seuls les appareils et composants qui répondent aux exigences d'un circuit TBTS (très basse tension de sécurité) selon EN60950 peuvent être connectés aux interfaces du système.
- Toutes les fiches des câbles de connexion doivent être vissées ou verrouillées au boîtier.
- En fonctionnement, l'appareil génère de la chaleur. S'assurer qu'il est ventilé de manière adéquate. Ne pas couvrir l'entrée d'air et les ouvertures d'évacuation de l'appareil.
- Les réparations doivent être effectuées exclusivement par des spécialistes qualifiés, autorisés par S&T.
- La maintenance ou la réparation de l'appareil ouvert ne doit être réalisée que par du personnel qualifié, autorisé par SNT, au courant des dangers associés.
- En cas d'accès aux composants internes, l'appareil doit être éteint et déconnecté de la source d'alimentation.

2.3. Cleaning of Display

Clean the surface of your display with a dry and clean cloth to eliminate dust and particles of dirt.

NOTICE	**Particles may scratch the surface. Do not apply any pressure.** **Use commercially available glass cleaner.**

2.4. Electromagnetic Compatibility EU

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. If the user modifies and/or adds to the equipment (e.g. installation of add-on cards) the prerequisites for the CE conformity declaration, (safety requirements) may no longer apply.

Table 1: Electromagnetic Compatibility CE

EN 60950-1 :2006+A1:2010 +A11:2009+A 12:2011 +A2:2013	Safety for information technology equipment including electrical business equipment
EN 55032:2015	Information technology equipment, Radio disturbance characteristics, Limits and methods of measurement (CISPR 32:2015)
EN 61000-6-2:2005 + Cor.:2005	Electromagnetic compatibility (EMC), Part 6-2:Generic Standards - Immunity for industrial environments+ CENELEC- Cor.:2005

2.5. Electrostatic Discharge (ESD)

A sudden discharge of electrostatic electricity can destroy static-sensitive devices or micro-circuitry. Therefore, proper packaging and grounding techniques are necessary precautions to prevent damage.

Always take the following precautions:

ESD Sensitive Device!

Keep electrostatic sensitive parts in their containers until they arrive at the ESD-safe workplace. Always be properly grounded when touching a sensitive board, component, or assembly.

For more Information, see the Special Handling and Unpacking Instruction within this user guide and Chapter 2.5.1 Grounding Methods below.

2.5.1. Grounding Methods

The following measures help to avoid electrostatic damages to the device:

- Cover workstations with approved antistatic material. Always wear a wrist strap connected to the workplace, as well as properly grounded tools and equipment.
- Use antistatic mats, heel straps, or air ionizers for more protection.
- Always handle electrostatically sensitive components by their edge or by their casing.
- Avoid contact with pins, leads, or circuitry.
- Turn off power and input signals before inserting and removing connectors or connecting test equipment.
- Keep the work area free of non-conductive materials such as ordinary plastic assembly aids and styrofoam.
- Use field service tools such as cutters, screwdrivers, and vacuum cleaners that are conductive.
- Always place drives and boards with the PCB-assembly-side down on the foam.

3/ Scope of Delivery

This chapter describes the components that are delivered and can be optionally ordered.

Please check that your delivery is complete and contains the items below (according to the ordered unit configuration). If you discover damaged or missing items, please contact your dealer.

Table 2: FlatClient ECO and PRO Scope of Delivery

	Qty	Part Number	Part Description
	1	s. order information chapter 6/	FlatClient ECO or PRO Monitor
	1	EM21-100168-01 (10.1") EM21-100065-0 (10.4"/12.1") 10645-9094 (13.3") EM21-100066-0 (15.0"/15.6") EM21-100067-01 (17.0"/19.0") EM21-100068-01 (18.5"/23.8") EM21-100069-01 (21.5")	Mounting set with clamps and screws, only for built-in variant
	1	EE04-100001-01	Phoenix Power Subcon w/ housing
	1	840-0059	EU-Powercord 1,8m
	1	ER40-100001-01 ER40-100005-01	Set Power supply 24VDC /w Phoenix Connector Set Power supply 24 VDC /w Phoenix incl. EU-Powercord 1,8m

Table 3: FlatClient ECO and PRO Accessories

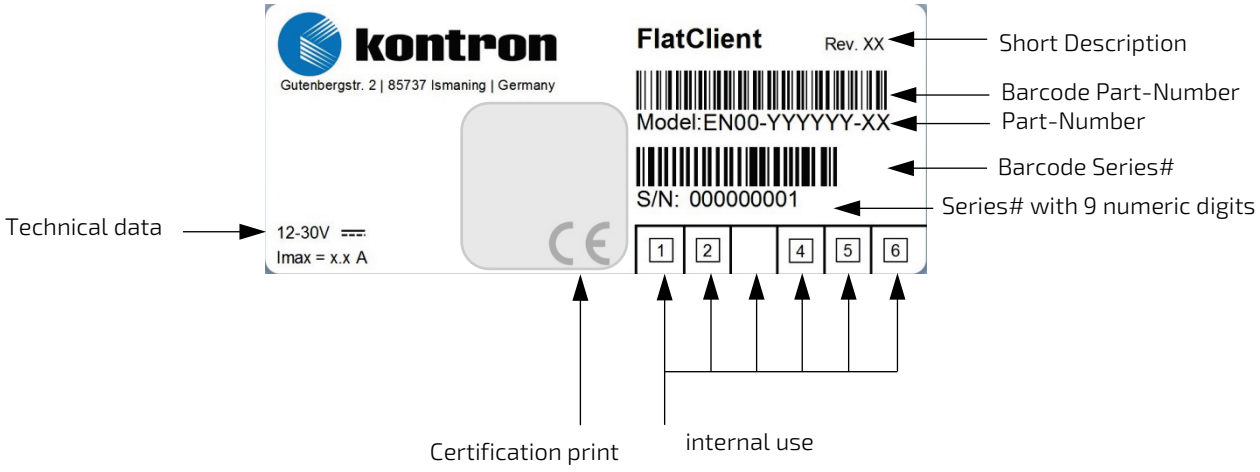
	Qty	Part Number	Part Description
	1	PR22-100004-01	Adapter Kabel HDMI - DisplayPort, 20cm, 4K aktiv, Delock: 62607
	1	PR22-100005-01	Adapter HDMI - DisplayPort 1.2, 4K aktiv, Delock: 65573
	1	PR22-100006-01	Adapter DVI-D - DisplayPort 1.1, Delock: 65257

	Qty	Part Number	Part Description
	1	PR22-100007-01	Adapter VGA - DisplayPort 1.1, Delock: 65567
	1	PR22-100008-01	Adapter DVI-I – HDMI, Delock: 65467
	1	840-0758	DisplayPort cable 1,8m
	1	840-0759	DisplayPort cable 3m
	1	840-0760	DisplayPort cable 5m
	1	840-0598	Adapter VGA / DVI
	1	840-0039	VGA/SVGA cable 1,8m/2,0m
	1	840-0273	USB-cable 1,8m, Type A – Type B
	1	840-0134	DVI-cable 2m

3.1.1. Type Label and Product Identification

Product and Package Label, size 85 x 35mm, polyester matt silver.

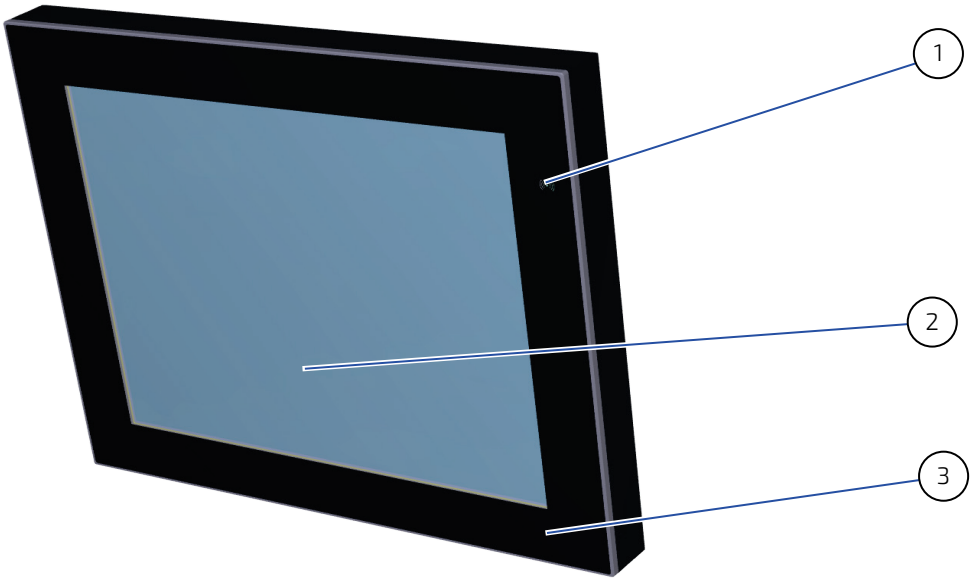
Figure 2: Type Label



4/ Product Description

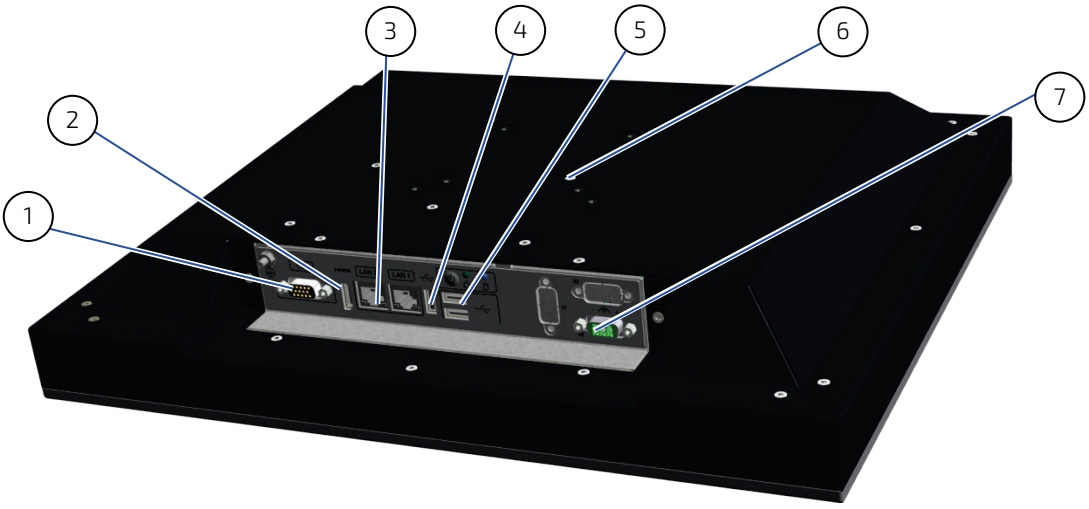
4.1. Product View

Figure 3: Front View Description FlatClient ECO Full-metal



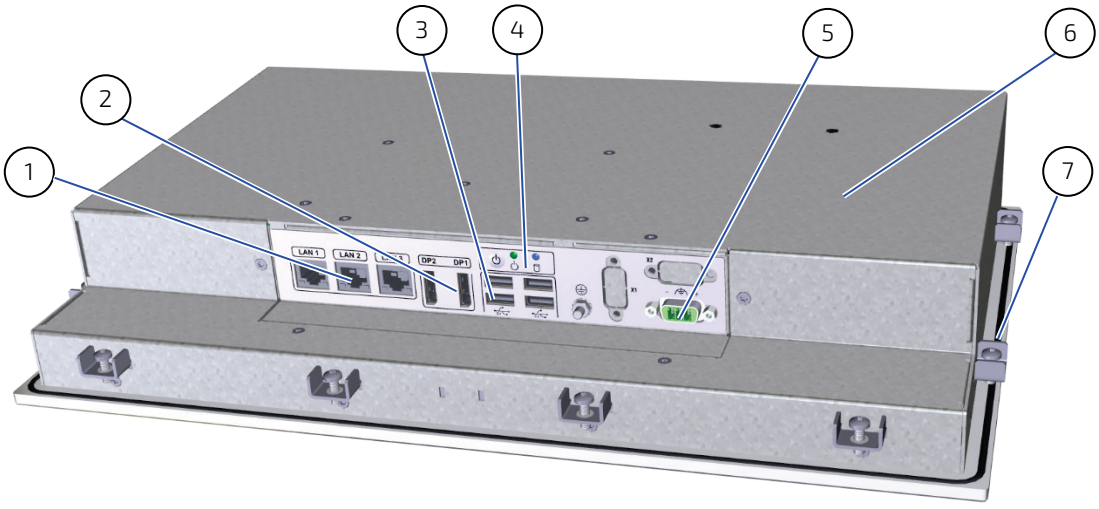
1 RFID sign (option)
2 TFT Display with resistive touch
3 Front plate

Figure 4: Bottom View Description – FlatClient ECO (BayTrail) Full-metal variant (Details of IOs capabilities can be found in 8/ for all CPU platforms)



1 VGA connector
2 HDMI port
3 LAN interface 2x
4 USB 3.0
5 USB 2.0 2x
6 VESA Mounting holes
7 Power connector

Figure 5: Bottom View Description – FlatClient PRO (Braswell) built-in variant variant (Details of IOs capabilities can be found in 8/ for all CPU platforms)



1 LAN ports 3x
2 DisplayPort 2x
3 USB 3.0 4x
4 Power/LED
5 Power connector
6 Rear cover
7 Mounting Clips

5/ Technical Data and Environmental Specification

Table 4: Technical Data FlatClient ECO and FlatClient PRO Line

Display Size	10.1“	10.4“	12.1“ SVGA	12.1“ XGA	12.1“ WXGA
Display Manufacturer	Innolux	Innolux	Innolux	Innolux	AUO
Display Type	G101ICE-L-01	G104AGE-L02	G121AGE-L03	G121X1-L03	G121EAN01.0
Resolution (pixel)	1280x800	800x600, SVGA	800x600, SVGA	1024x768, XGA	1280x800, WXGA
Format	16:10	4:3	4:3	4:3	16:10
Contrast Ratio	800:1	700:1	1500:1	700:1	1000:1
Brightness	500cd	400 cd	450 cd	600 cd	500 cd
Angle View	H170°/V170°	H160°/V140°	H178°/V178°	H160°/V140°	H178°/V178°
Colors	16.2 million	16.7 million	16.7 million	16.2 million	16.7 million
LED Lifetime (> 50%, 25°C)	> 50.000 h	> 50.000 h	> 50.000 h	> 50.000 h	> 100.000 h
Dimensions (WxHxD-mm)	276 x 195 x 65	297 x 244 x 65	338 x 277 x 65	338 x 277 x 65	315 x 228 x 65
Weight	~ 3.6 kg	~ 3.9 kg	~ 4.7 kg	~ 4.7 kg	~ 5.0 kg
Protection glass	X	X	X	X	X
PCAP (Multitouch)	X	X	X	X	X
Resistive touch	On request	X	X	X	On request
Color	RAL 7021 (black anthracite)				
Fastening	VESA 75/75 or 100/100 (full metal housing only); fastening clips (built-in-variant only)				

other Display manufacturers and types are possible

Table 5: Technical Data FlatClient ECO and FlatClient PRO Line

Display Size	13.3“	15.0“	15.6“ Full HD	15.6“ Full HD
Display Manufacturer	AUO	Innolux	Innolux	AUO
Display Type	G133HAN01.0	G150XGE-L04	G156BGE-L01	G156HTN02.0
Resolution	1920x1080	1024x768	1366x768, HD	1920x1080, Full HD
Format	16:9	4:3	16:9	16:9
Contrast Ratio	800:1	700:1	500:1	500:1
Brightness	400cd	400 cd	300 cd	400 cd
Angle View	H178°/V178°	H160°/V140°	H160°/V160°	H140°/V120°
Colors	16.7 million	16.7 million	16.7 million	16.2 million
LED Lifetime (> 50%, 25°C)	> 50.000 h	> 50.000 h	> 50.000 h	> 50.000 h
Dimensions (WxHxD-mm)	315 x 228 x 65	396 x 312 x 69	432 x 281 x 74	432 x 281 x 74
Weight	~ 4.7 kg	~ 6.4 kg	~ 6.7 kg	~ 6.7 kg
Protection glass	X	X	X	X
PCAP (Multitouch)	X	X	X	X
Resistive touch	On request	X	X	X
Color	RAL 7021 (black anthracite)			
Fastening	VESA 75/75 or 100/100 (full metal housing only); fastening clips (built-in-variant only)			

Table 6: Technical Data FlatClient ECO and FlatClient PRO Line

Display Size	17.0“	18.5“ HD	18.5“ FullHD	19.0“
Display Manufacturer	AUO	Innolux	AUO	AUO
Display Type	G170EG01V1	G185BGE-L01	G185HAN01.0	G190ETN01.2
Resolution	1280x1024	1366x768, HD	1920x1080, FullHD	1280x1024
Format	5:4	16:9	16:9	5:4
Contrast Ratio	800:1	1000:1	1000:1	1000:1
Brightness	350 cd	300 cd	350 cd	350 cd
Angle View	H160°/V140°	H178°/V170°	H178/V178°	H170°/V160°
Colors	16.7 million	16.7 million	16.7 million	16.7 million
LED Lifetime (> 50%, 25°C)	> 50.000 h	> 50.000 h	> 50.000 h	> 50.000 h
Dimensions (WxHxD-mm)	427 x 360 x 74	500 x 321 x 74	500 x 321 x 74	473 x 396 x 68
Weight	~ 7.8 kg	~ 8.6 kg	~ 8.6 kg	~ 9.4 kg
Protection glass	X	X	X	X
PCAP (Multitouch)	X	X	X	X
Resistive touch	X	X	X	X
Color	RAL 7021 (black anthracite)			
Fastening	VESA 75/75 or 100/100 (full metal housing only); fastening clips (built-in-variant only)			

Table 7: Technical Data FlatClient ECO and FlatClient PRO Line

Display Size	21.5“	23.8“			
Display Manufacturer	AUO	AUO			
Display Type	G215HVN01.0	G238HAN01.0			
Resolution	1920x1080, Full HD	1920x1080, Full HD			
Format	16:9	16:9			
Contrast Ratio	3000:1	1000:1			
Brightness	300 cd	250cd			
Angle View	H178°/V178°	H178°/V178°			
Colors	16.7 million	16.7 million			
LED Lifetime (> 50%, 25°C)	> 50.000 h	> 30.000h			
Dimensions (WxHxD-mm)	575 x 367 x 74	569 x 357 x 69			
Weight	~ 10.7 kg	~ 11.8 kg			
Protection glass	X	X			
PCAP (Multitouch)	X	X			
Resistive touch	X	On request			
Color	RAL 7021 (black anthracite)				
Fastening	VESA 75/75 or 100/100 (full metal housing only); fastening clips (built-in-variant only)				

Table 8: Technical Data for FlatClient ECO Line with BayTrail and Braswell processors

CPU	Intel® BayTrail Celeron Quad Core J1900	Option: Intel® Braswell Celeron Quad Core N3150(DT)
Memory	4GB DDR3 SO-DIMM	
BIOS	AMI uEFI BIOS	
I/O Standard	2xGbE (1x Intel® I210, 1x Realtek RTL8111G), 1x HDMI, 1x VGA, 1x USB3.0, 2x USB2.0	2xGbE (2x Intel® I210), 1x HDMI, 1x DP, 4x USB3.0, 1x VGA, 2x USB2.0 (option)
Power Supply	12 to 30 VDC Input	
Cooling	Fanless passive cooling	
Operating Temperature	0°C - 50°C ambient	
OS Support	Windows7 incl Embedded, Windows 8.1 incl Embedded, Linux	Windows7 incl Embedded, Windows8.1 incl Embedded, Windows10, Linux
Certification	CE, cULus	CE
Protection class	Front: IP65, Housing IP20	
Options	8 GB RAM, CF/SD Card Adapter, SD Card Memory 4 GB, 16 GB, 32 GB, 64 GB, CF Card Memory on demand, mSATA SSD 32 GB, 64 GB, 128 GB, 2x COM (RS232, RS422, RS485), Audio with amplifier (2x 3 W), RFID, WiFi (on demand)	

Table 9: Technical Data FlatClient ECO Line with Apollo Lake Processors

CPU	Intel® Pentium® CPU N4200
Memory	4 GB DDR3L
BIOS	AMI uEFI BIOS
Hardware Monitor	Temperature, Voltages
Watchdog	Programmable WDT to generate System reset event
Realtime Clock (RTC)	Processor integrated RTC
I/O Standard	2xGbE (RJ-45 on rear, Intel® I210-AT), 4x USB3.0, 1x DP, 1x HDMI
Power Supply	12 to 30 VDC Input
Cooling	Fanless passive cooling
Operating Temperature	0°C - 50°C ambient
OS Support	Windows 10 IoT, Linux Ubuntu
Certification	CE, FCC Class A, UL Canada
Protection class	Front: IP65, Housing IP20
Options	CF/SD Card Adapter, SD Card Memory 4GB, 16GB, 32 GB, 64 GB, CF Card Memory on demand, m.2 SSD 32 GB, 64 GB, 128 GB, 256 GB, 512 GB, 2x COM (RS232, RS422, RS485), Audio with amplifier (2x 3W), RFID, WiFi (on demand)

Table 10: Technical Data FlatClient PRO Line with Haswell and Broadwell processors

CPU	Intel® Haswell ULT i5-4300U	Option: Intel® Broadwell ULT i5-5350U
Memory	4 GB DDR3 SO-DIMM	
BIOS	AMI uEFI BIOS	
Hardware Monitor	Temperature, Voltages	
Watchdog	Programmable WDT to generate System reset event	
Realtime Clock (RTC)	Processor integrated RTC	
I/O Standard	2xGbE (1x Intel® I210, 1x Realtek RTL8111G), 4x USB3.0	
Power Supply	12 to 30 VDC Input	
Cooling	Fanless passive cooling	
Operating Temperature	0°C - 50°C ambient (UL listed 0°C - 45°C)	0°C - 45°C ambient
OS Support	Windows7 incl Embedded, Windows8.1 incl Embedded, Linux, Windows XP (limited)	
Certification	CE, cULus	CE
Protection class	Front: IP65, Housing IP20	
Options	8 GB RAM, CF/SD Card Adapter, SD Card Memory 4GB, 16GB, 32GB, 64GB, CF Card Memory on demand, mSATA SSD 32GB, 64GB, 128GB, 2x COM (RS232, RS422, RS485), Audio with amplifier (2x 3W), RFID, WiFi (on demand)	

Table 11: Technical Data FlatClient PRO Line with Skylake and Kaby Lake CPU

CPU	Intel® Skylake ULT Core™ i5-6300U	Intel® Kaby Lake ULT Core™ i5-7300U
Memory	4 GB DDR4 SO-DIMM	
BIOS	AMI uEFI BIOS	
Hardware Monitor	Temperature, Voltages	
Watchdog	Programmable WDT to generate System reset event	
Realtime Clock (RTC)	Processor integrated RTC	
I/O Standard	2xGbE, 1x DP, 4x USB3.0	
Power Supply	12 to 30 VDC Input	
Cooling	Fanless passive cooling	
Operating Temperature	0°C - 50°C ambient (UL listed 0°C - 45°C)	
OS Support	Windows7 incl Embedded, Windows 10 IoT, Linux Ubuntu	
Certification	CE, cULus, Design to meet FCC	
EMC	EN55022 class B	
Protection class	Front: IP65, Housing IP20	
Options	8 or 16 GB RAM, CF/SD Card Adapter, SD Card Memory 4GB, 16GB, 32GB, 64GB, CF Card Memory on demand, M.2 SSD 32GB, 64GB, 128GB, 2x COM (RS232, RS422, RS485), Audio with amplifier (2x 3W), RFID, WiFi (on demand)	

Table 12: Environmental Specification FlatClient ECO and FlatClient PRO Line

Operating Altitude	Up to 3000 m (9900 ft)
Storage Altitude	Up to 5000 m (16500 ft)
Humidity	10%-90% @ 39°C, non condensing
Certification	CE, cULus (only for Haswell and BayTrail CPU)
Protection Class	Front: IP65, Housing IP20
EMC	EN55022 class B

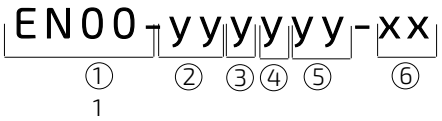
Table 13: CE Directives and standards CE Directives

Low Voltage Directive (Electrical Safety)	2014/35/EU
EMC Directive	2014/30/EU
RoHS II Directives	E2011/65/EU + 2015/863/EU + 2017/2102/EU

6/ Order Information

Example: Order-Number: EN00-Z11100-01

FlatClient ECO 10.4“ with Intel® BayTrail Celeron Quad Core J1900 resistive touch in Full-metal housing with 4 GB RAM, 32 GB mSATA, no any other options



① Internal Code (Standard FlatClient)
1

② Display Size/CPU

ZU = 10.1“ with Intel BayTrail Celeron J1900 inside or just as monitor

Z1 = 10.4“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z2 = 12.1“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

ZW = 12.1" WXGA with Intel BayTrail Celeron J1900 inside or just as monitor

ZY = 13.3" with with Intel BayTrail Celeron J1900 inside or just as monitor

Z3 = 15.0“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z4 = 15.6“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z5 = 17.0“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z6 = 18.5“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z7 = 19.0“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z8 = 21.5“ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

Z9 = 15.6“ with Intel® Haswell ULT, i5-4300U inside

ZA = 17.0“ with Intel® Haswell ULT, i5-4300U inside

ZB = 18.5“ with Intel® Haswell ULT, i5-4300U inside

ZC = 19.0“ with Intel® Haswell ULT, i5-4300U inside

ZD = 21.5“ with Intel® Haswell ULT, i5-4300U inside

ZE = 15.0“ with Intel® Haswell ULT, i5-4300U inside

ZF = 12.1“ with Intel® Haswell ULT, i5-4300U inside

ZG = 10.4“ with Intel® Haswell ULT, i5-4300U inside

ZV = 10.1“ with Intel Haswell ULT, i5-4300U inside

ZX = 12.1“ WXGA with Haswell ULT, i5-400U inside

ZZ = 13.3“ with Haswell ULT, i5-400U inside

ZH = 23.8““ with Intel® BayTrail Celeron Quad Core J1900 inside or just as monitor

ZJ = 23.8““ with Intel® Haswell ULT, i5-4300U inside

③ Touch Technology: 0 = without touch, only with protection glass

1 = Touch resistive

2 = Touch PCAP

3 = with protection glass and stainless steel front

4 = Touch resistive and stainless steel front

5 = Touch PCAP and stainless steel front

6 = Touch PCAP V2 (low cost)

7 = Protection glass V2 (low cost)

④ Mounting Variant: 1 = PPC Full-metal

2 = PPC built-in-mounting

⑤ Options: counted on demand, possible options are:

8GB RAM

CF/SD Card Adapter

SD Card 8GB – 16GB – 32GB – 64GB

CF Card 8GB – 16GB – 32GB

Up to 2x COM (RS232, RS422, RS485

mSATA SSD 32GB – 64GB – 128GB

Audio with amplifier (2x 3W)

WiFI

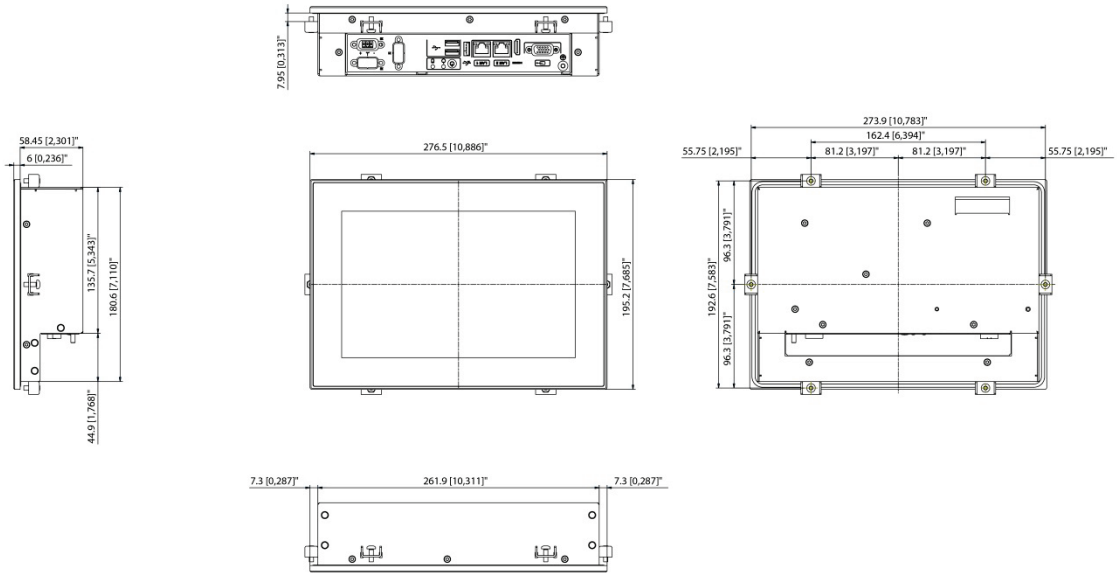
RFID

Display Options (full HD, XGA; ….)

⑥ Internal Code (Revision)

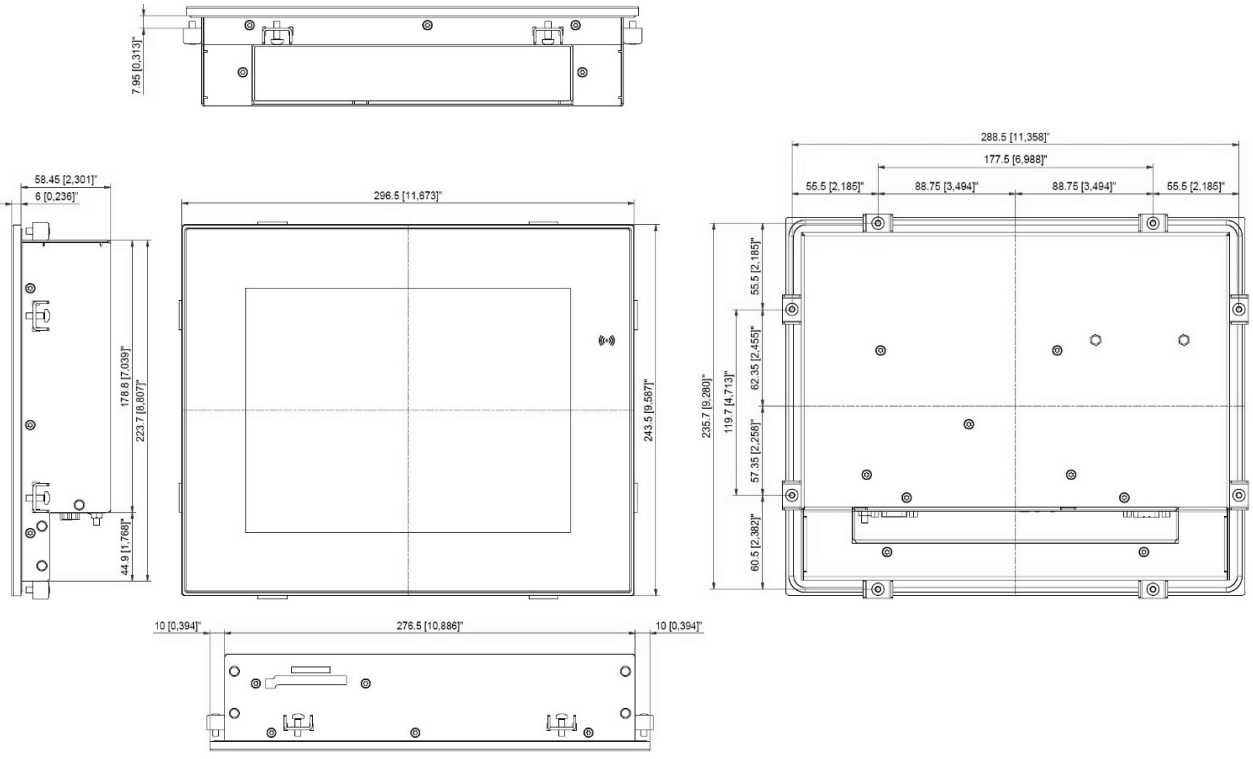
7/ Mechanical specification

7.1. 10.1“ Built-in Variant

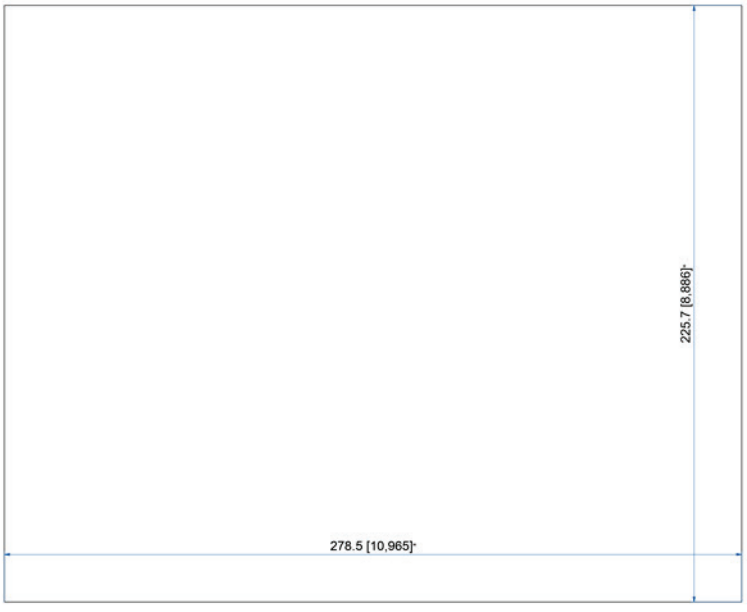


7.1.1. 10.1"Panel Cutout

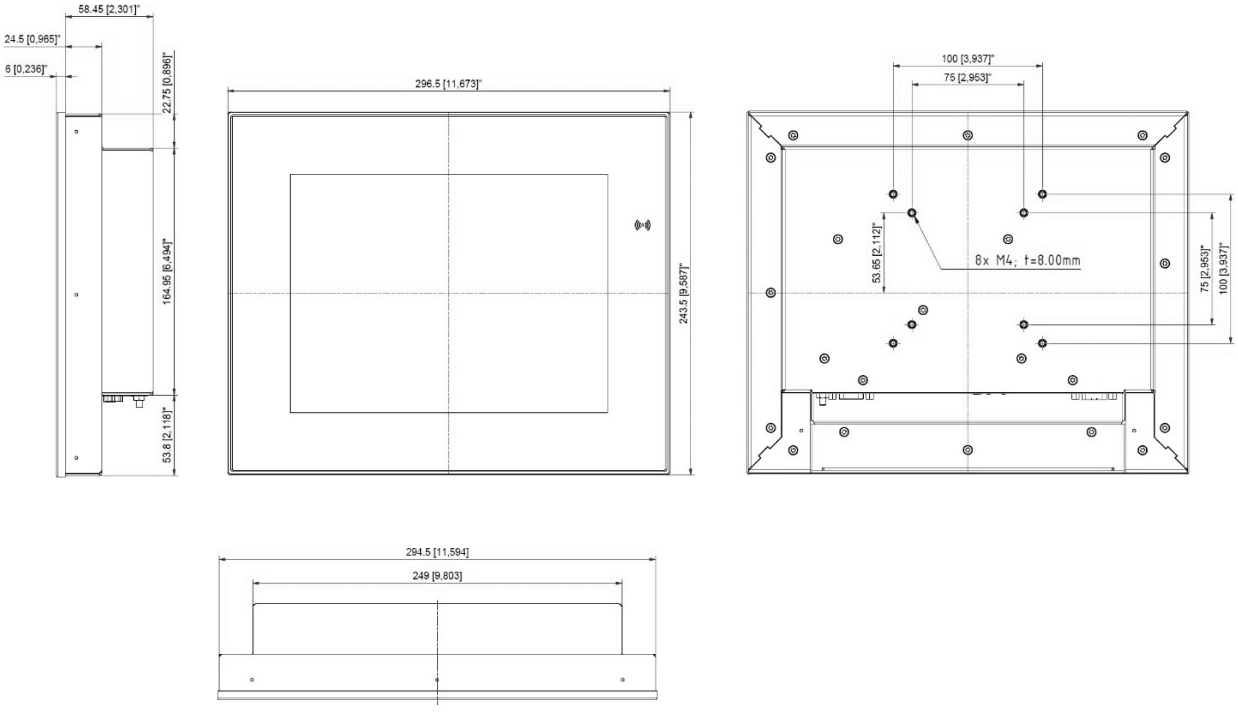
7.2. 10.4“ Built-in Variant



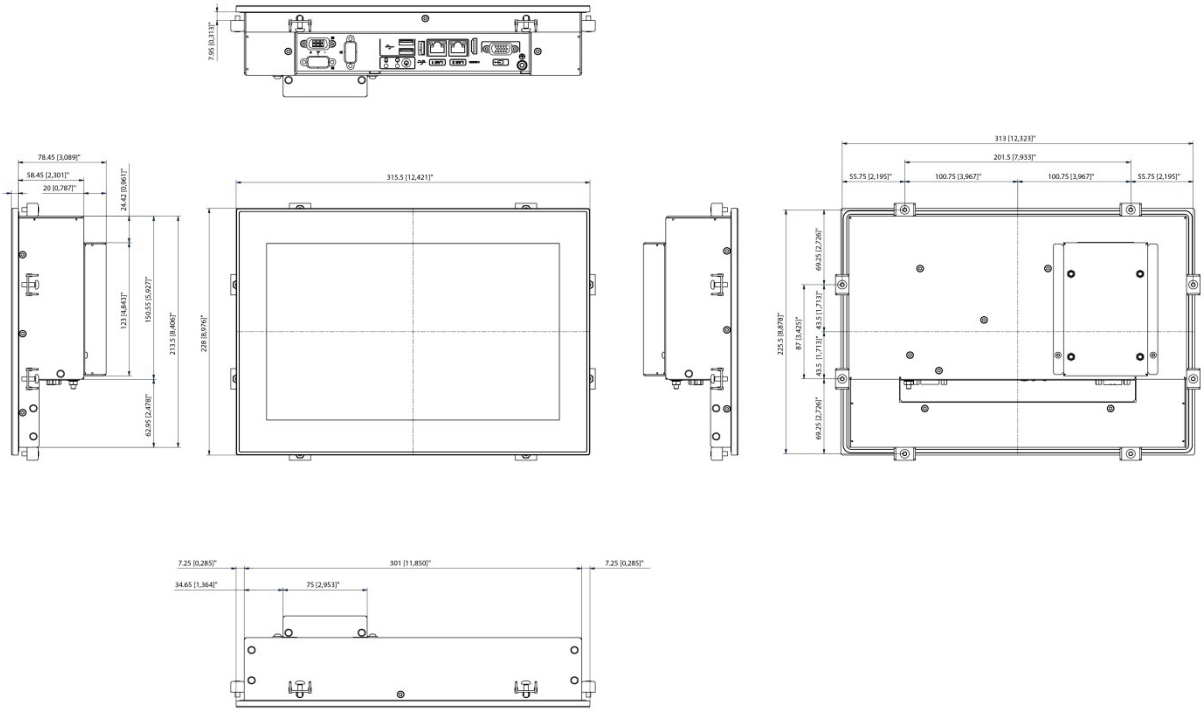
7.2.1. 10.4" Panel Cutout



7.3. 10.4“ Full-metal Variant

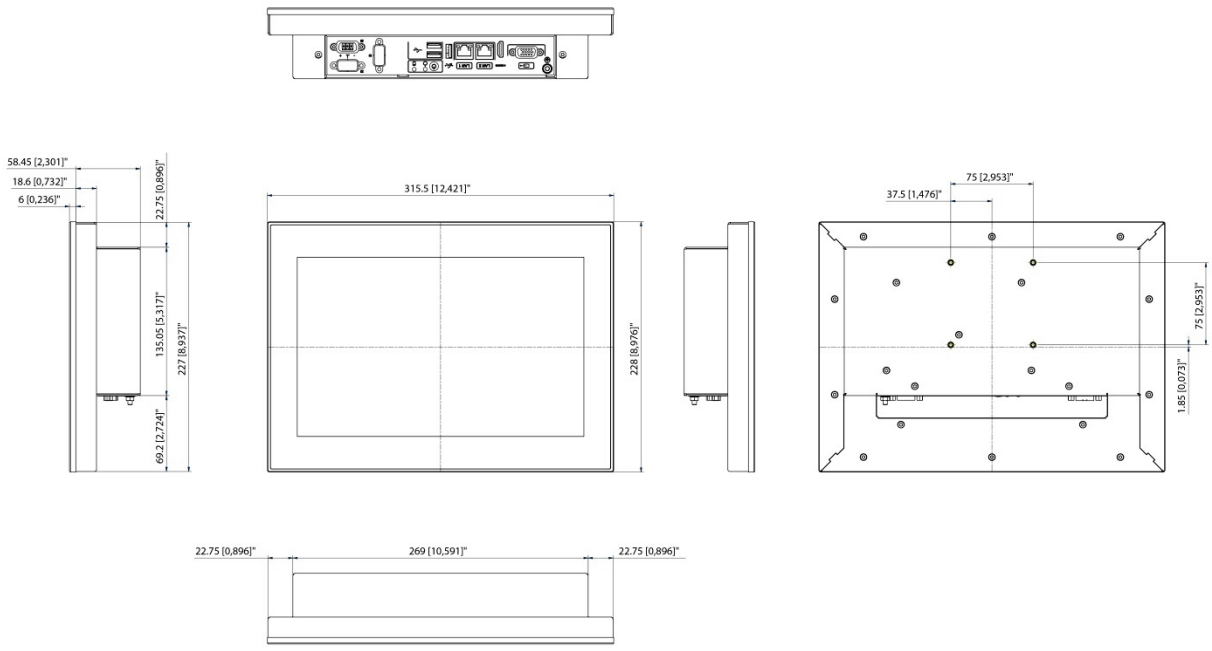


7.4. 12.1“ Built-in Variant WXGA (1280x800)

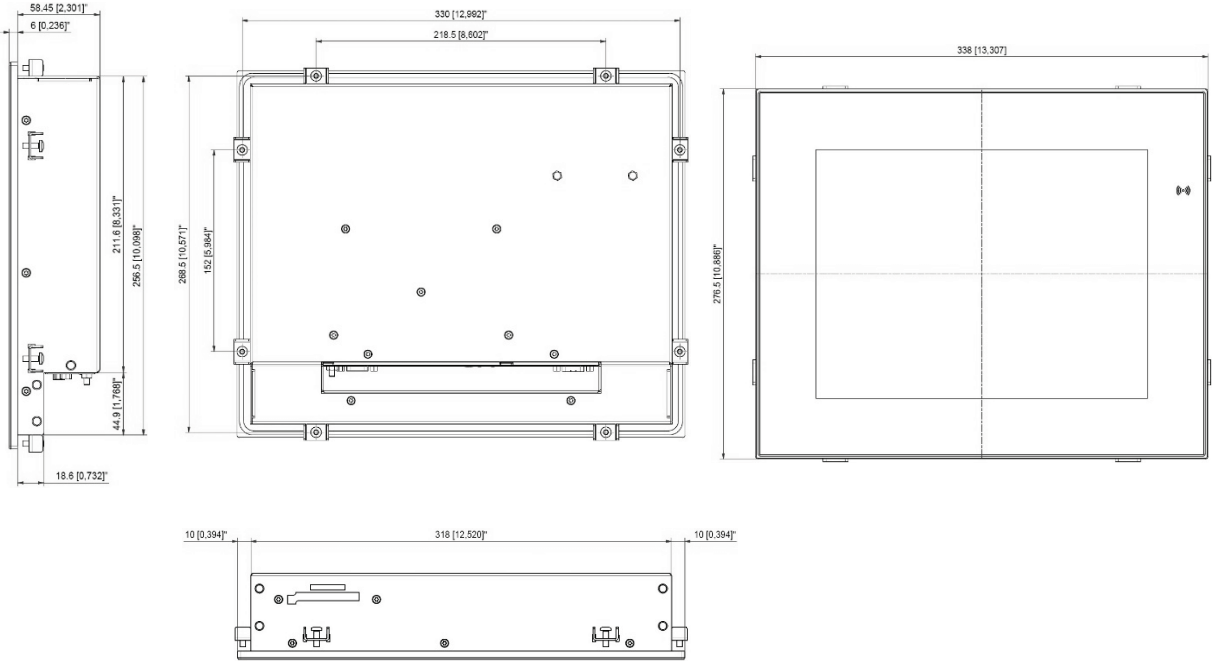


7.4.1. 12.1" WXGA Panel Cutout

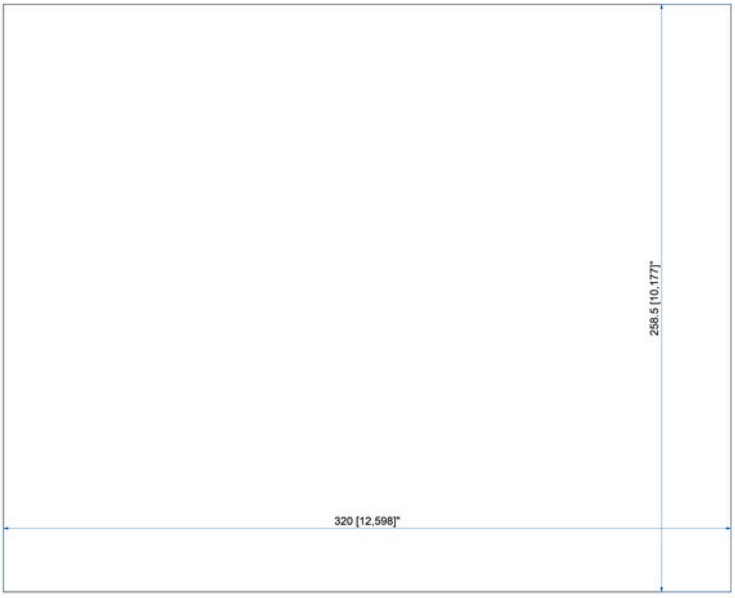
7.5. 12.1“ Full-metal Variant WXGA (1280x800)



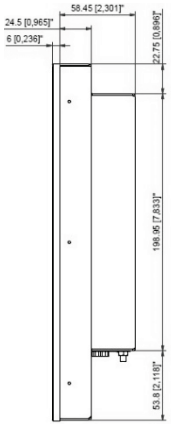
7.6. 12.1“ Built-in Variant SVGA and XGA (800x600, 1024x768)

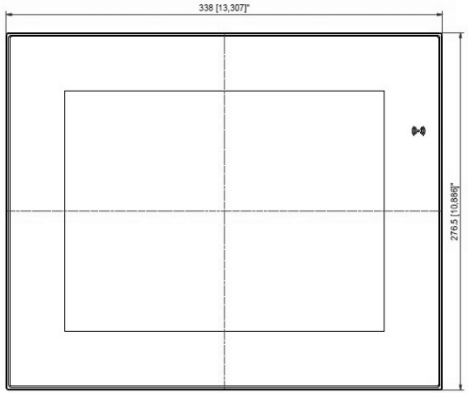


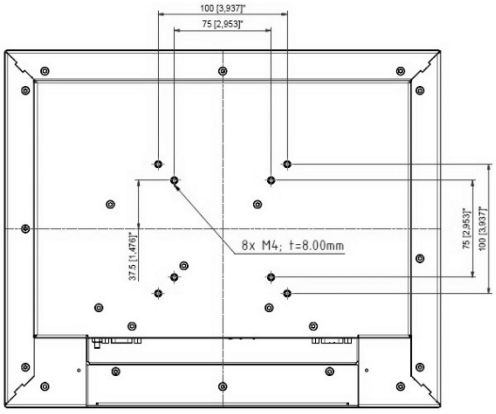
7.6.1. 12.1" Panel Cutout

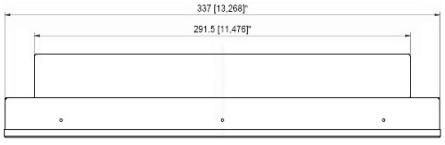


7.7. 12.1“ Full-metal Variant SVGA and XGA (800x600, 1024x768)

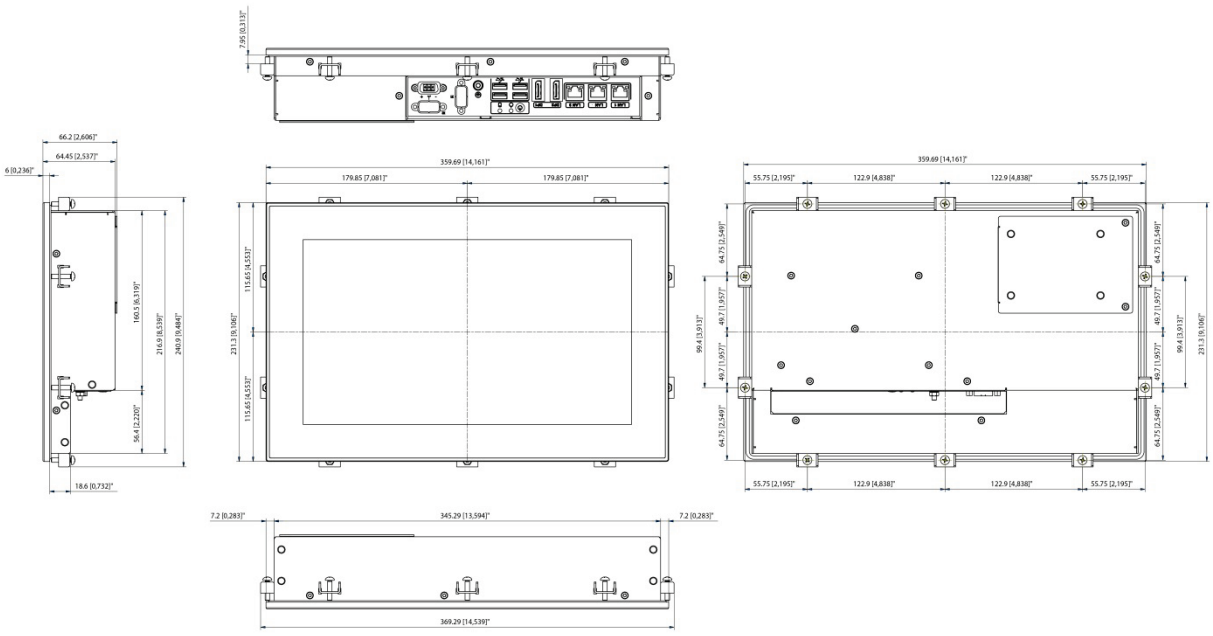






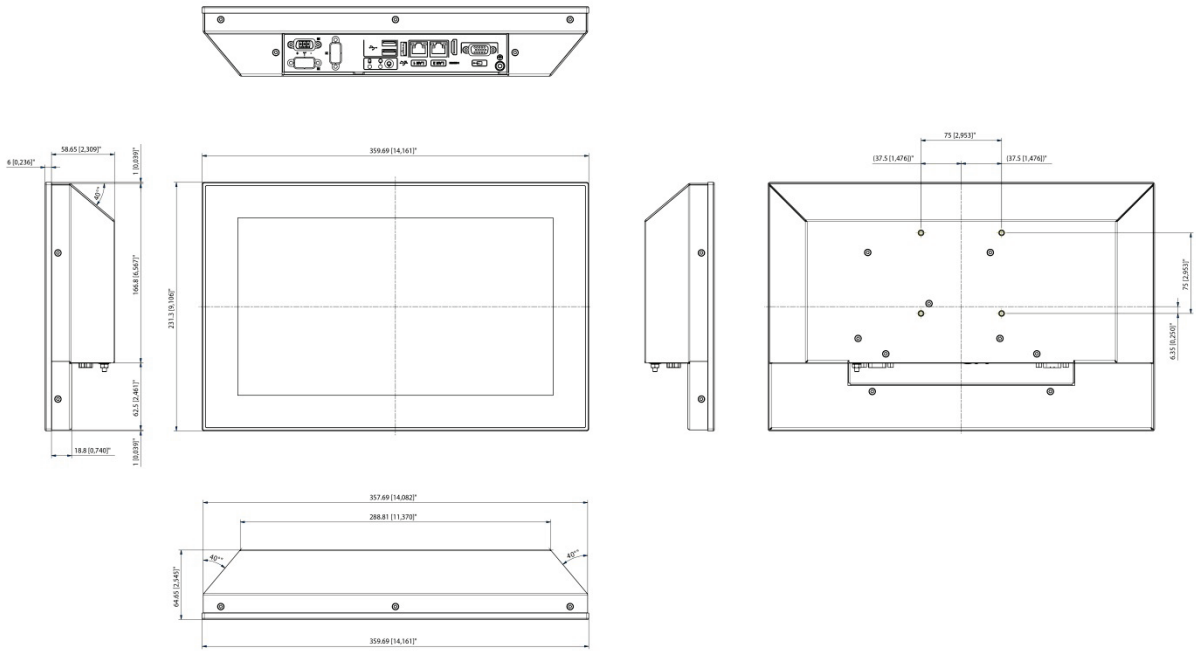


7.8. 13.3“ Built-in Variant

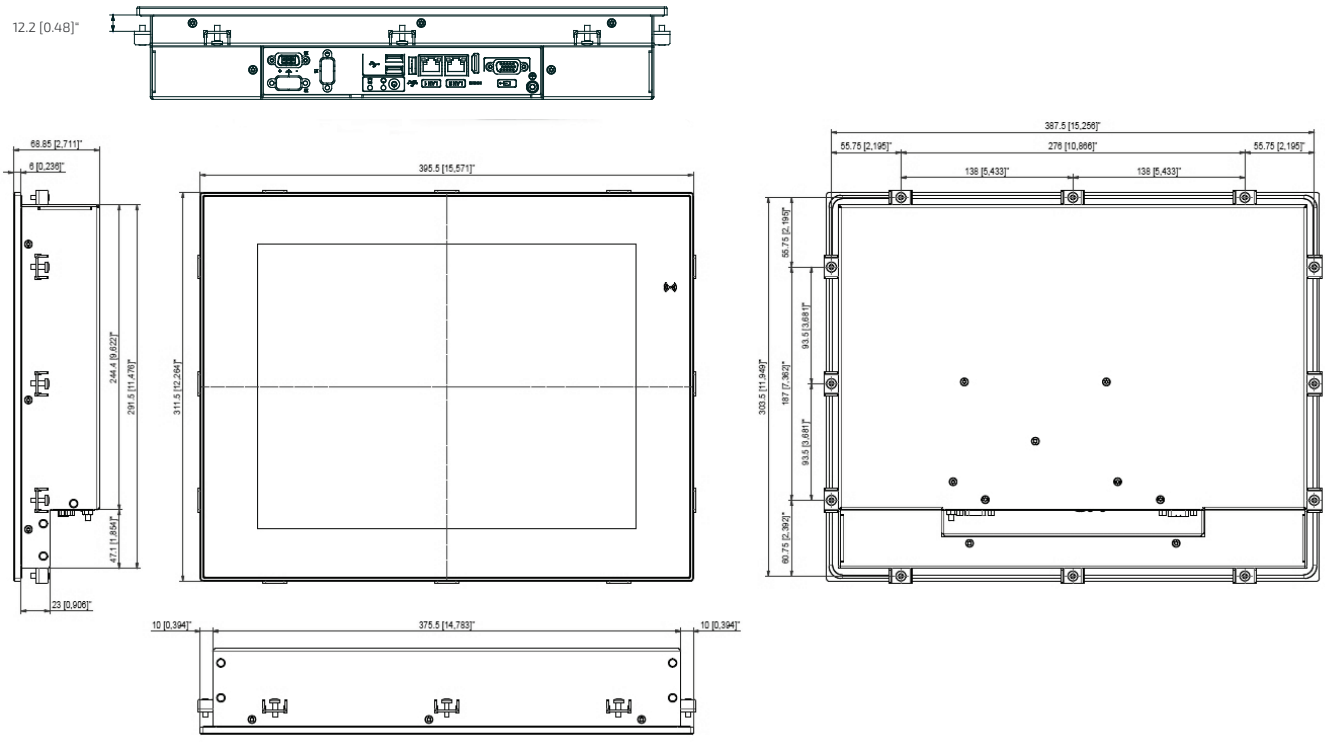


7.8.1. 13.3" Panel Cutout

7.9. 13.3“ Full-metal Variant

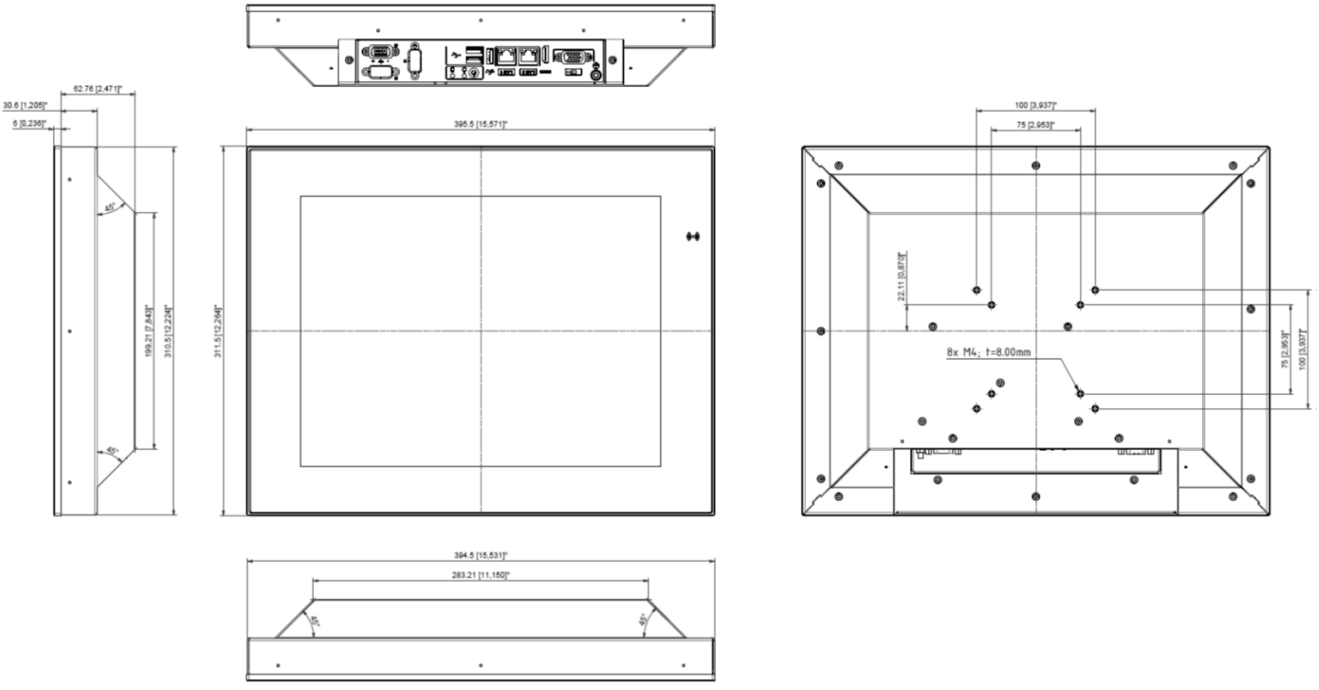


7.10. 15.0“ Built-in Variant

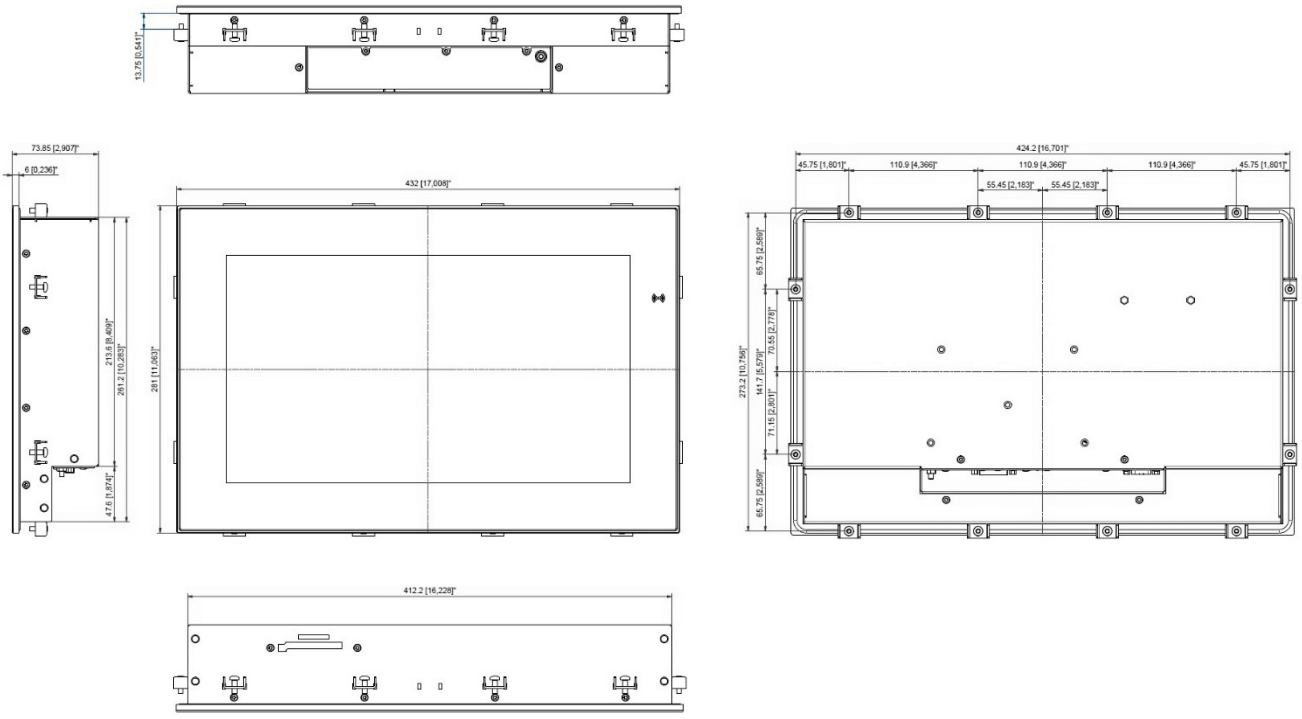


7.10.1. 15.0" Panel Cutout

7.11. 15.0“ Full-metal Variant

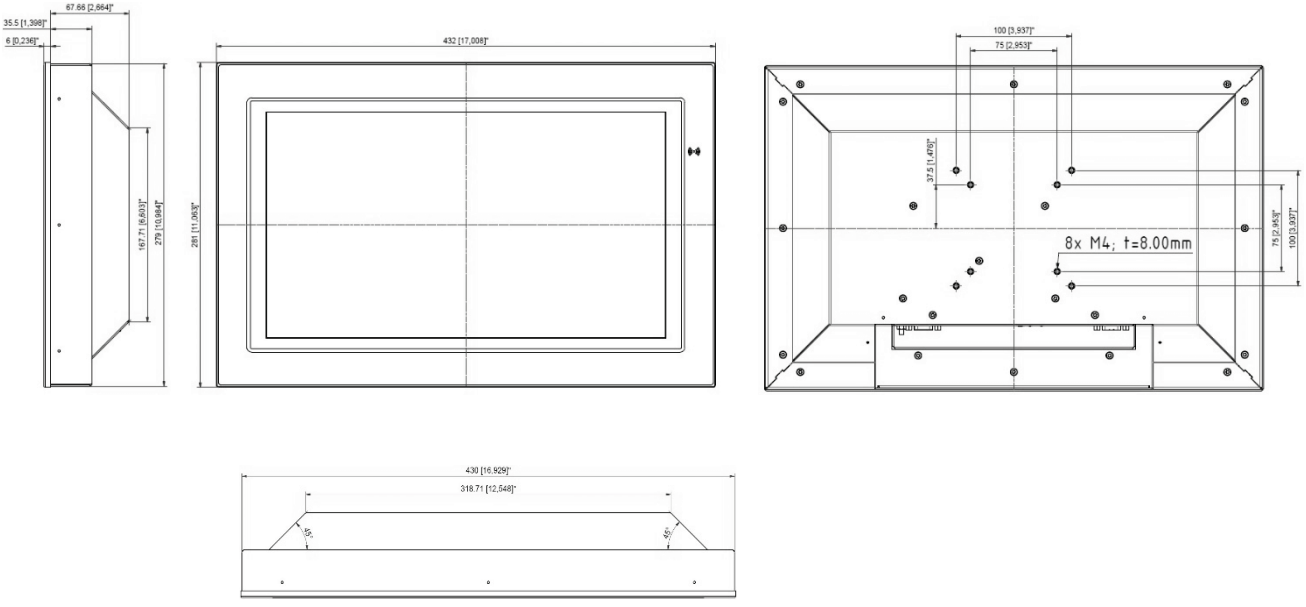


7.12. 15.6“ Built-in Variant

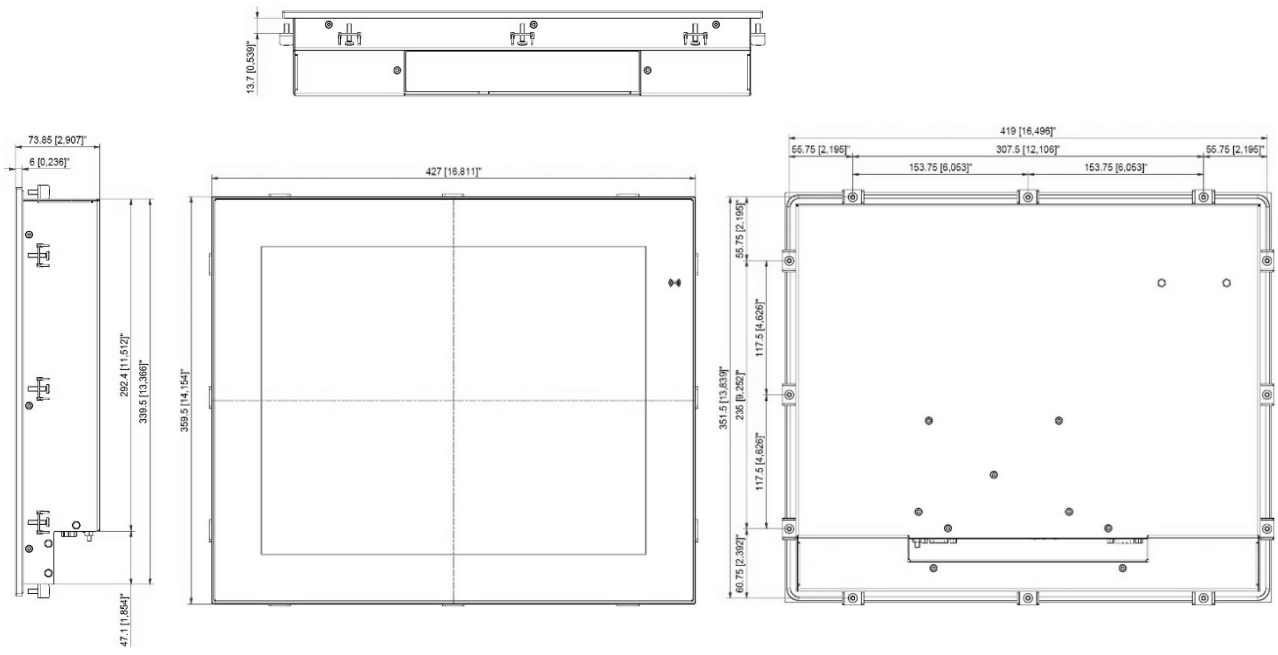


7.12.1. 15.6" Panel Cutout

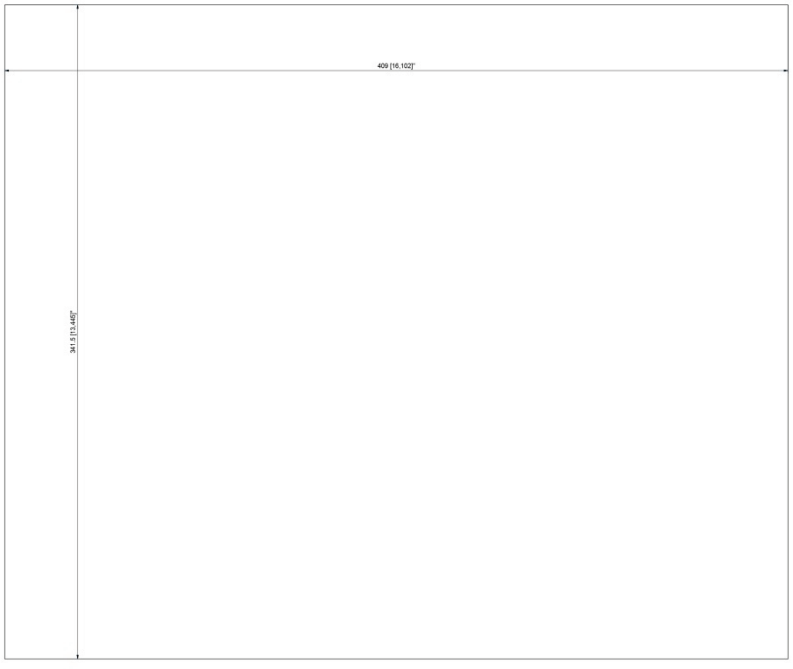
7.13. 15.6“ Full-metal Variant



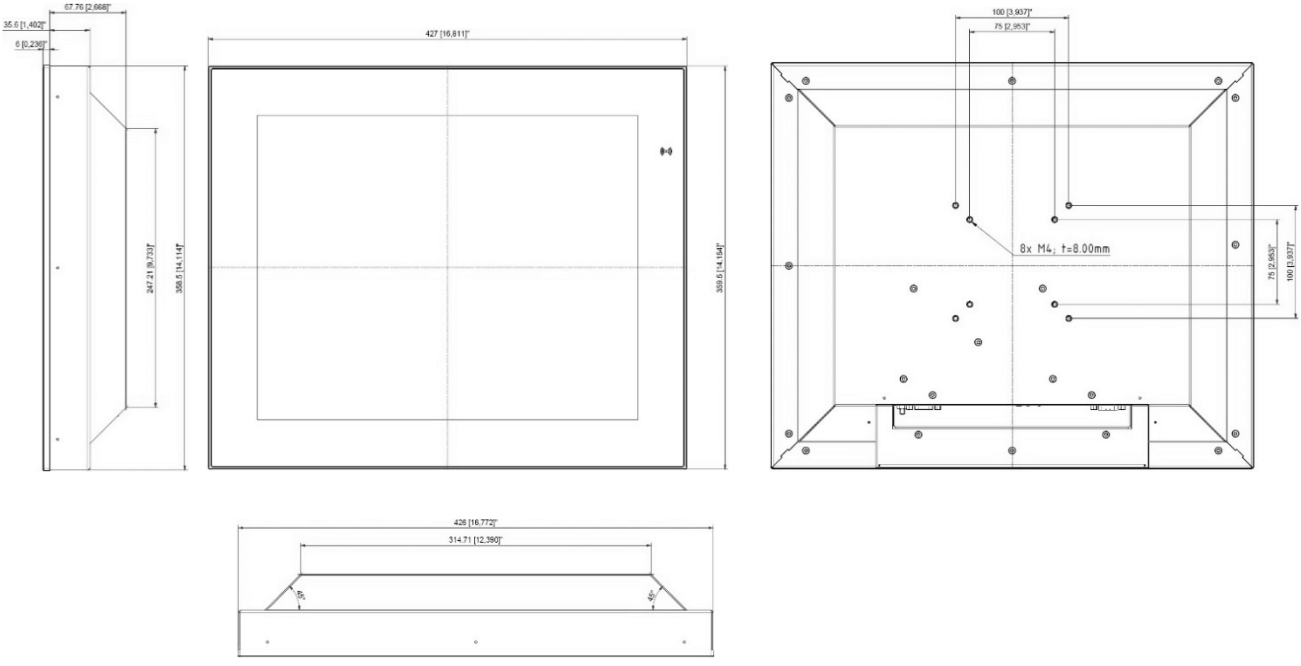
7.14. 17.0“ Built-in Variant



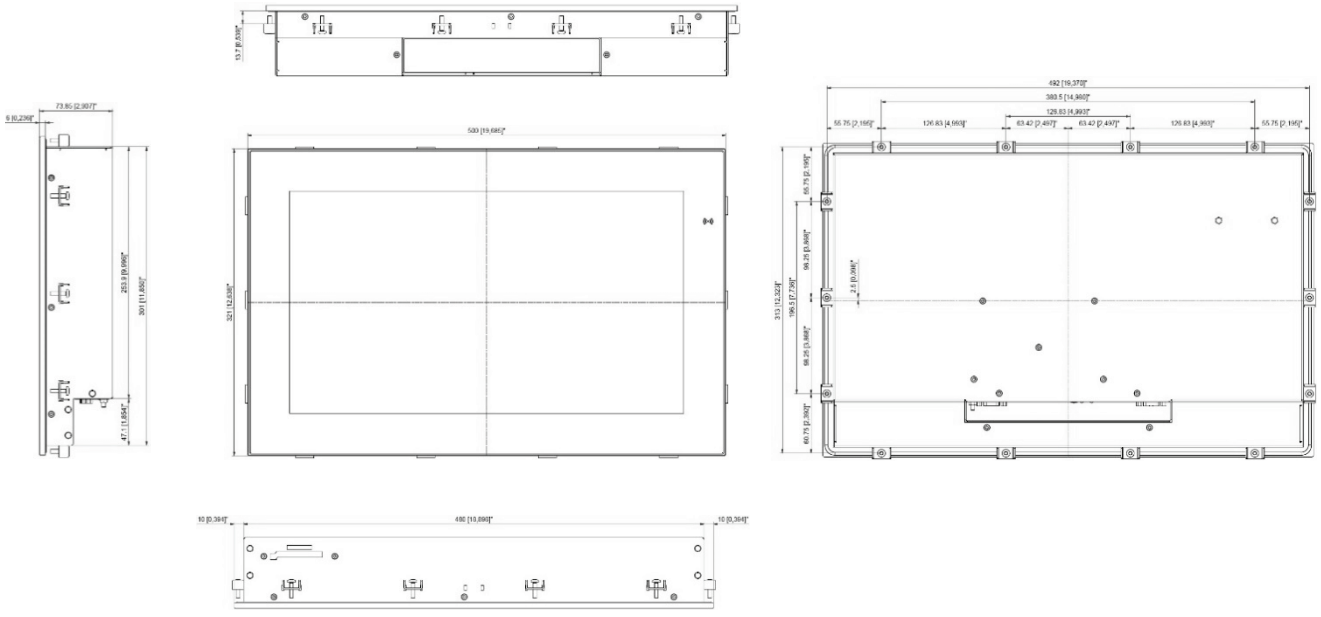
7.14.1. 17.0" Panel Cutout



7.15. 17.0“ Full-metal Variant

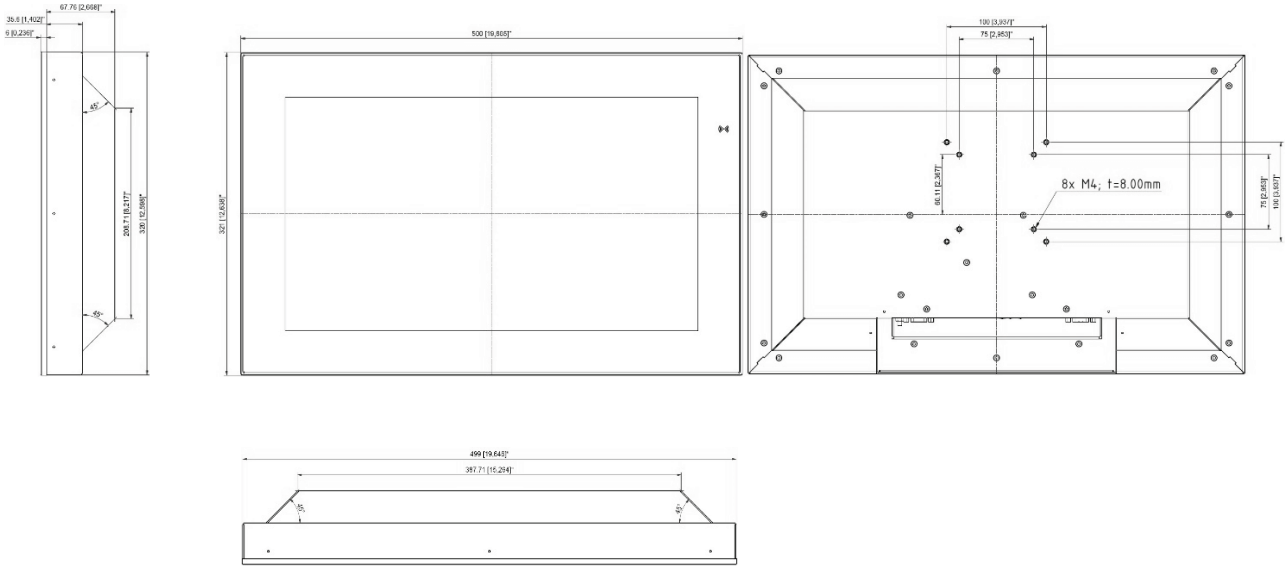


7.16. 18.5“ Built-in Variant (HD and FullHD)

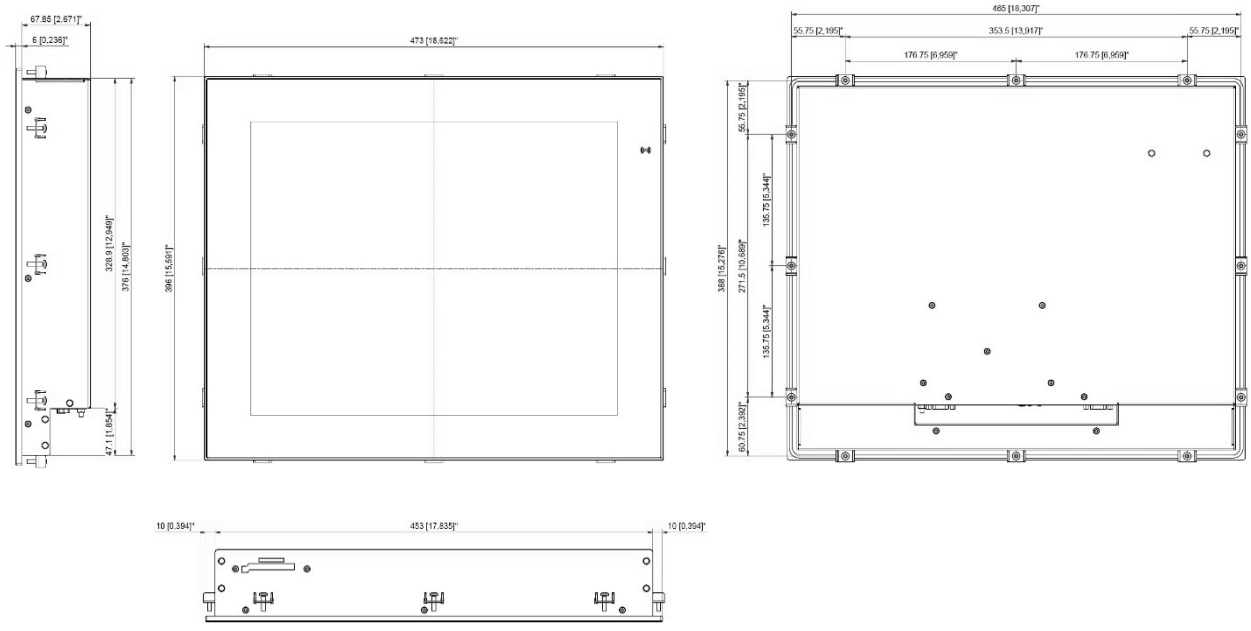


7.16.1. 18.5" Panel Cutout

7.17. 18.5“ Full-metal Variant (HD and FullHD)

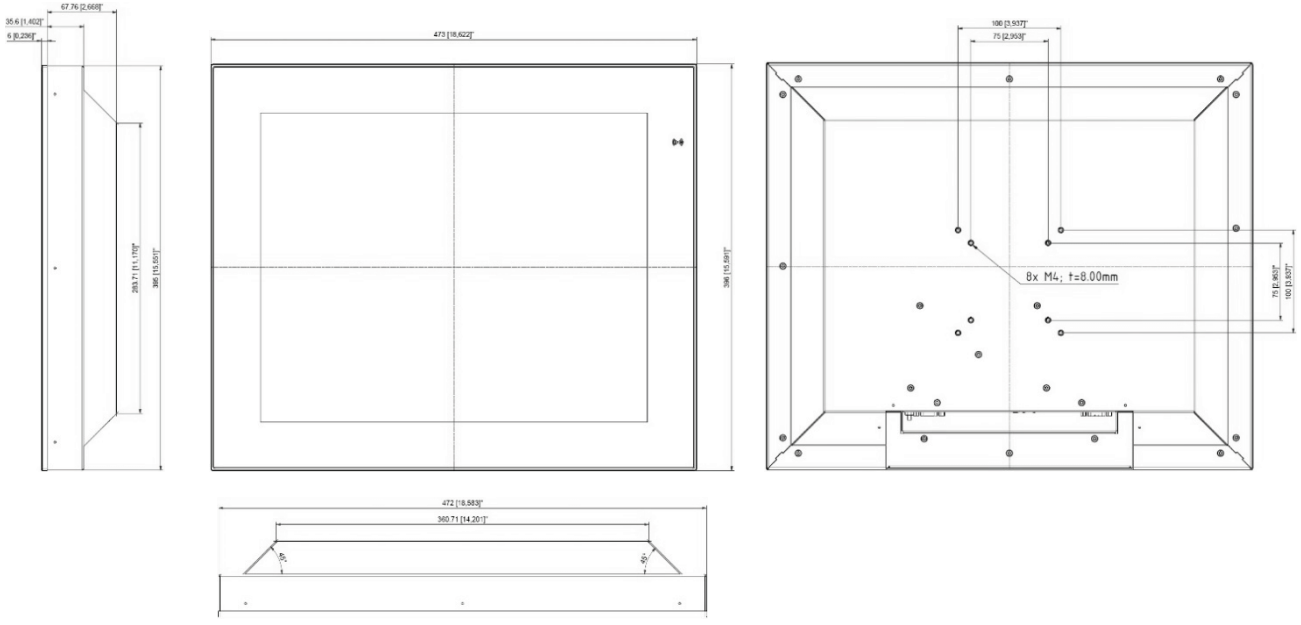


7.18. 19.0“ Built-in Variant

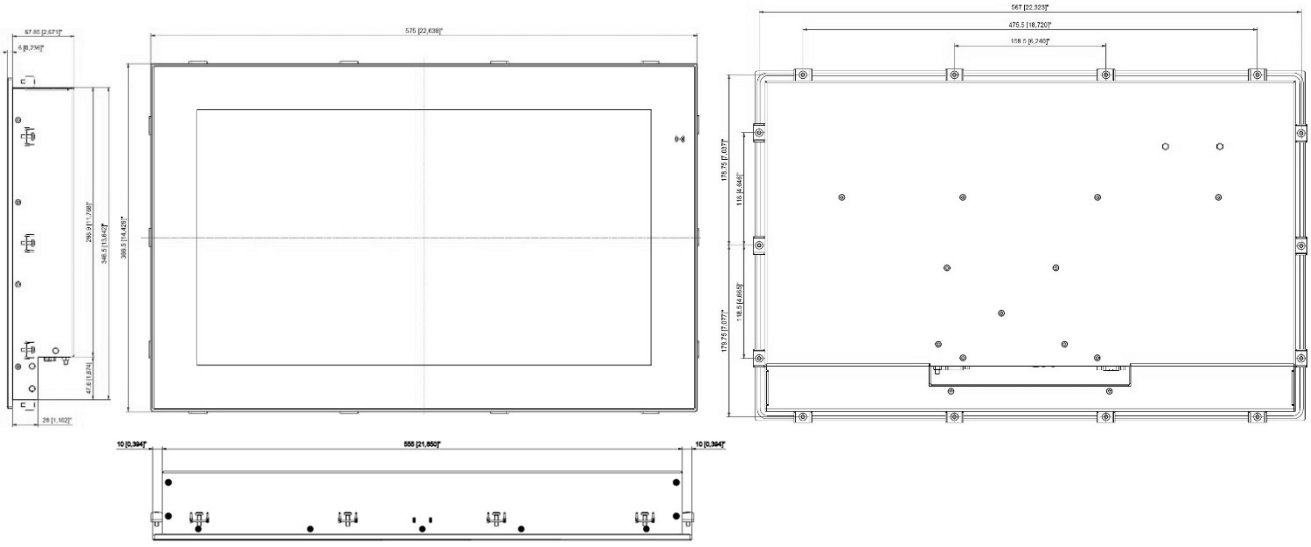


7.18.1. 19.0" Panel Cutout

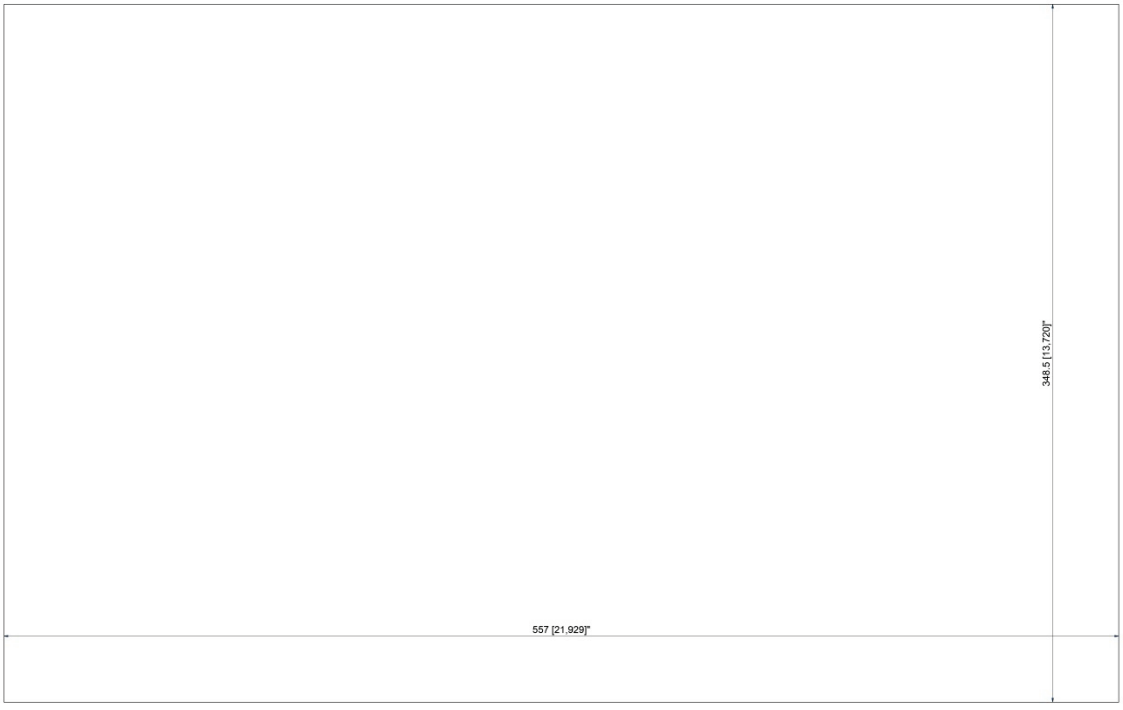
7.19. 19.0“ Full-metal Variant



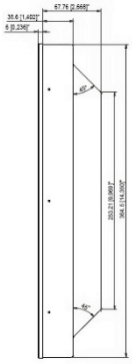
7.20. 21.5“ Built-in Variant

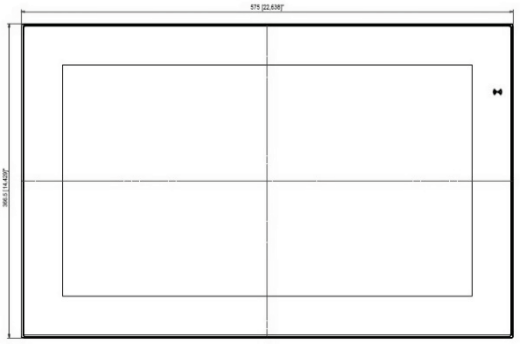


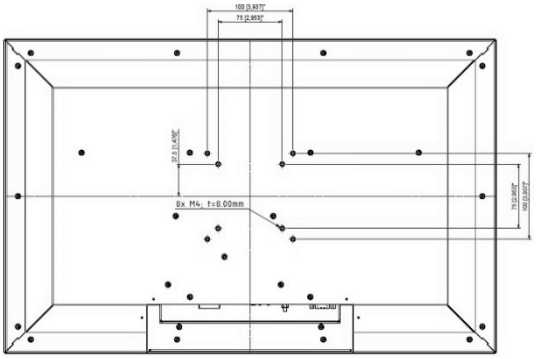
7.20.1. 21.5" Panel Cutout

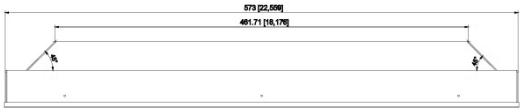


7.21. 21.5“ Full-metal Variant

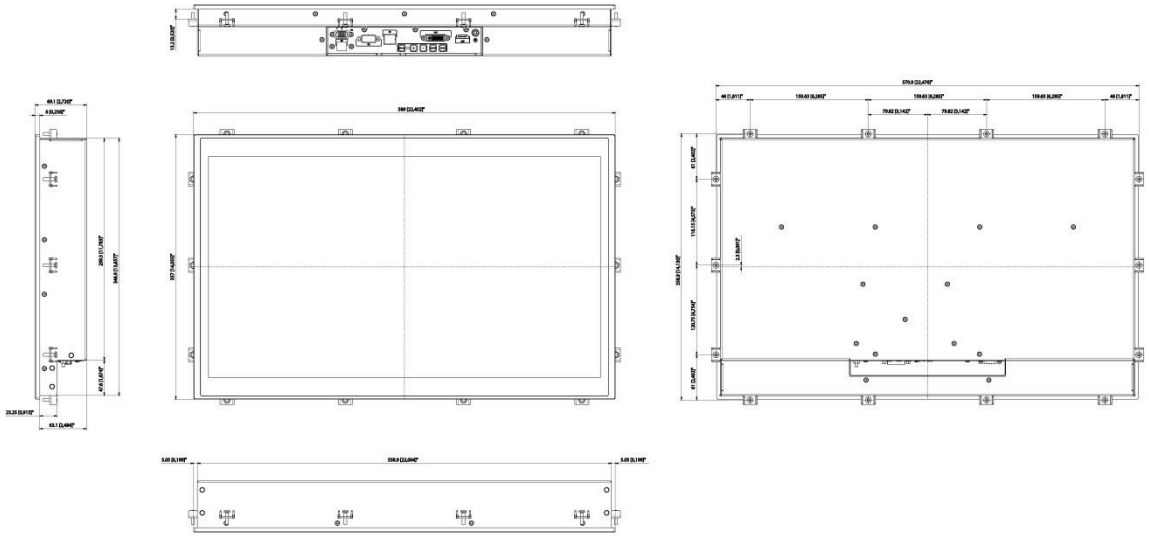






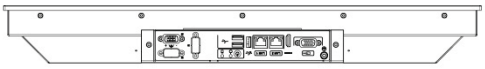


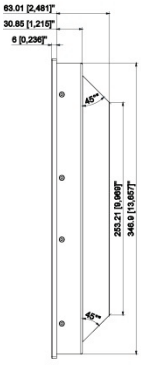
7.22. 23.8“ Built-in Variant

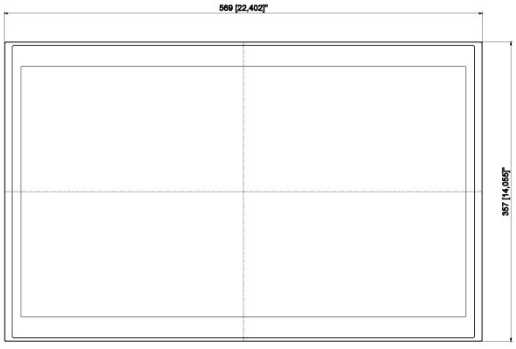


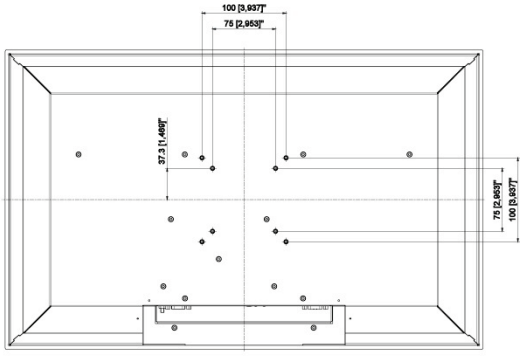
7.22.1. 23.8 "Panel Cutout

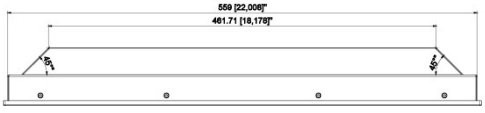
7.23. 23.8“ Full-metal Variant







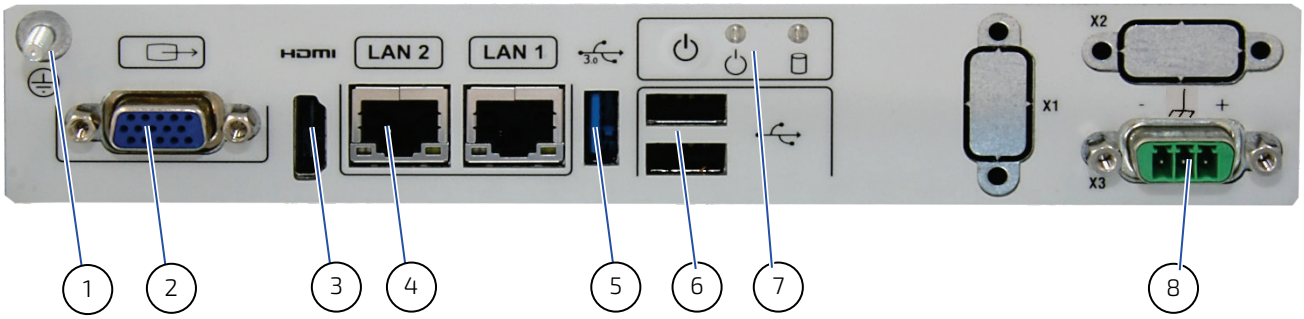




8/ Connectors

8.1. FlatClient ECO Intel BayTrail J1900

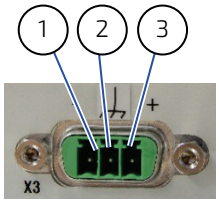
Figure 6: Interfaces for Panel PC FlatClient ECO variant



1 Earth stud
2 VGA connector
3 HDMI
4 2x GbE
5 USB 3.0
6 2x USB 2.0
7 Power/LEDs
8 Power connector

8.1.1. Input Power Connector

Figure 7: Input Power



1 GND
2 Shield
3 VCC

Figure 8: Mating Connector

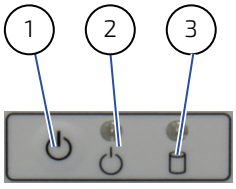
Manufacturer: Phoenix Contact

Product: PSC 1,5/ 3-F

Order#: 1841909

8.1.2. Power-Switch and LEDs

Figure 9: Power-Switch and LEDs



1 Power on
2 LED Power
3 LED Drive Activity

Table 14: Power LED

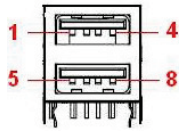
LED	Signal
Off	No Power
Green	Active
Green blinking	Standby

Table 15: Drive Activity

LED	Signal
Off	No Power
Green	Active

8.1.3. USB2.0 Type-A Connector

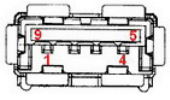
Table 16: Pinout USB 2.0



Pin	Signal Name	Pin	Signal Name
1	+USB_VCC	5	+USB_VCC
2	USBA_A-	6	USBB_B-
3	USBA_A+	7	USBB_B+
4	GND	8	GND

8.1.4. USB3.0 Type-A Connector

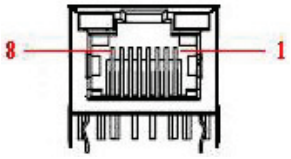
Table 17: Pinout USB 2.0



Pin	Signal Name	Pin	Signal Name
1	+USB_VCC	5	USB_RX-
2	USB_D-	6	USB_RX+
3	USB_D+	7	GND
4	GND	8	USB_TX-
		9	USB_TX+

8.1.5. GbE RJ-45 Connector

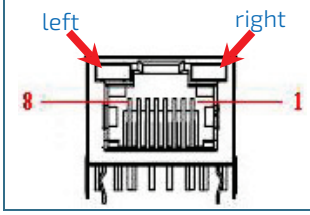
Table 18: Pinout GbE RJ-45 Connector



Pin	Signal Name	Pin	Signal Name
1	TX1+	5	TX3-
2	TX1-	6	TX2-
3	TX2+	7	TX4+
4	TX3+	8	TX4-

8.1.6. LED Diagram of LAN Connectors

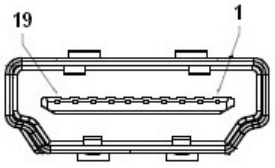
Table 8: Status of LEDs from GbE RJ-45 Connector



left LED: activity/link		right LED: 10/100/1000	
off	No LAN connectivity	off	10 Mbit
yellow	link	green	100 Mbit
yellow blinking	activity	orange	1 GbE

8.1.7. HDMI Connector

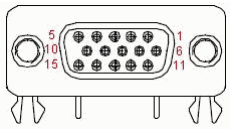
Table 19: Pinout HDMI Connector



Pin	Signal Name
1	TMDS Data2+
2	GND
3	TMDS Data2–
4	TMDS Data1+
5	GND
6	TMDS Data1–
7	TMDS Data0+
8	GND
9	TMDS Data0–
10	TMDS Clock+
11	GND
12	TMDS Clock–
13	Reserved
14	Reserved
15	DDC_CLK
16	DDC_DATA
17	GND
18	+5 V Power
19	Hot Plug Detect

8.1.8. DB15 VGA Connector

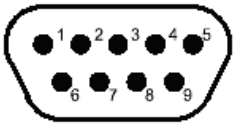
Table 20: Pinout VGA Connector



Pin	Signal Name	Pin	Signal Name
1	Red	2	Green
3	Blue	4	n.c.
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	n.c.	12	DDC Data
13	Hsync	14	Vsync
15	DDC Clock		

8.1.9. COM2 RS-232/422/485 (via internal cable connection to CN16, Option)

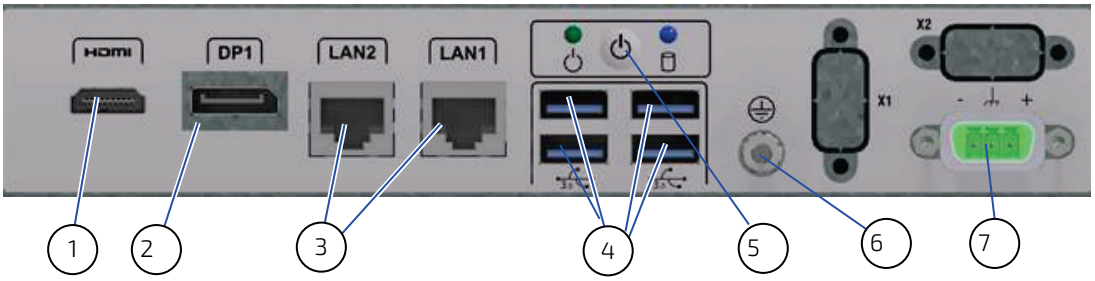
Table 21: Pinout RS-232/422/485 Connector



Pin	RS-232	RS-422	Half Duplex RS-485	Full Duplex RS-485
1	DCD	Tx-	DATA-	Tx-
2	RxD	Tx+	DATA+	Tx-
3	TxD	Rx+	-	Rx+
4	DTR	Rx-	-	Rx-
5	GND	GND	GND	GND
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-
9	RI	-	-	-

8.2. FlatClient ECO Apollo Lake N4200

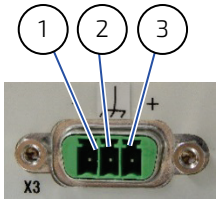
Figure 10: Interfaces for Panel PC FlatClient Apollo Lake variant



1	HDMI
2	DP connector
3	2x GbE
4	4x USB 3.0
5	Power/LEDs
6	Earth stud
7	Power connector

8.2.1. Input Power Connector

Figure 11: Input Power



1	GND
2	Shield
3	VCC

Figure 12: Mating Connector

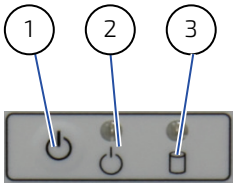
Manufacturer: Phoenix Contact

Product: PSC 1,5/ 3-F

Order#: 1841909

8.2.2. Power-Switch and LEDs

Figure 13: Power-Switch and LEDs



1 Power on
2 LED Power
3 LED Drive Activity

Table 22: Power LED

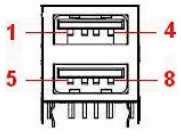
LED	Signal
Off	No Power
Green	Active
Green blinking	Standby

Table 23: Drive Activity

LED	Signal
Off	No Power
Green	Active

8.2.3. USB2.0 Type-A Connector

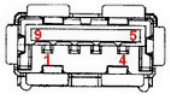
Table 24: Pinout USB 2.0



Pin	Signal Name	Pin	Signal Name
1	+USB_VCC	5	+USB_VCC
2	USBA_A-	6	USBB_B-
3	USBA_A+	7	USBB_B+
4	GND	8	GND

8.2.4. USB3.0 Type-A Connector

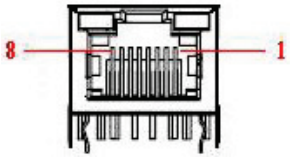
Table 25: Pinout USB 2.0



Pin	Signal Name	Pin	Signal Name
1	+USB_VCC	5	USB_RX-
2	USB_D-	6	USB_RX+
3	USB_D+	7	GND
4	GND	8	USB_TX-
		9	USB_TX+

8.2.5. GbE RJ-45 Connector

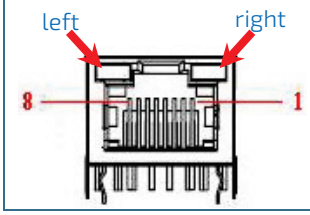
Table 26: Pinout GbE RJ-45 Connector



Pin	Signal Name	Pin	Signal Name
1	TX1+	5	TX3-
2	TX1-	6	TX2-
3	TX2+	7	TX4+
4	TX3+	8	TX4-

8.2.6. LED Diagram of LAN Connectors

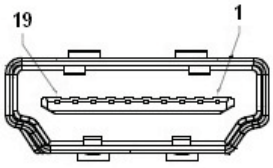
Table 8: Status of LEDs from GbE RJ-45 Connector



left LED: activity/link		right LED: 10/100/1000	
off	No LAN connectivity	off	10 Mbit
yellow	link	green	100 Mbit
yellow blinking	activity	orange	1 GbE

8.2.7. HDMI Connector

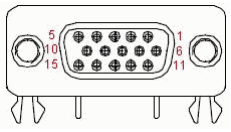
Table 27: Pinout HDMI Connector



Pin	Signal Name
1	TMDS Data2+
2	GND
3	TMDS Data2–
4	TMDS Data1+
5	GND
6	TMDS Data1–
7	TMDS Data0+
8	GND
9	TMDS Data0–
10	TMDS Clock+
11	GND
12	TMDS Clock–
13	Reserved
14	Reserved
15	DDC_CLK
16	DDC_DATA
17	GND
18	+5 V Power
19	Hot Plug Detect

8.2.8. DB15 VGA Connector

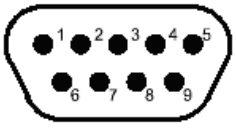
Table 28: Pinout VGA Connector



Pin	Signal Name	Pin	Signal Name
1	Red	2	Green
3	Blue	4	n.c.
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	n.c.	12	DDC Data
13	Hsync	14	Vsync
15	DDC Clock		

8.2.9. COM2 RS-232/422/485 (via internal cable connection to CN16, Option)

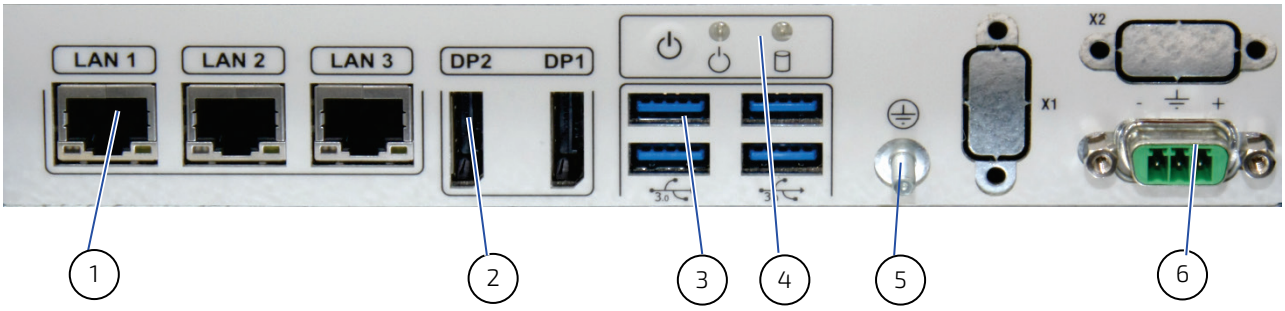
Table 29: Pinout RS-232/422/485 Connector



Pin	RS-232	RS-422	Half Duplex RS-485	Full Duplex RS-485
1	DCD	Tx-	DATA-	Tx-
2	RxD	Tx+	DATA+	Tx-
3	TxD	Rx+	-	Rx+
4	DTR	Rx-	-	Rx-
5	GND	GND	GND	GND
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-
9	RI	-	-	-

8.3. FlatClient PRO Haswell

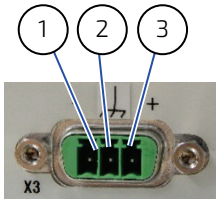
Figure 14: Interfaces for Panel PC PRO variant



1	LAN interface 3x	5	Earth stud
2	DisplayPort 2x	6	Power connector
3	USB 3.0 4x		
4	Power/LEDs		

8.3.1. Input Power Connector

Figure 15: Input Power



1	GND
2	Shield
3	VCC

Figure 16: Mating Connector

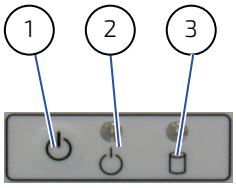
Manufacturer: Phoenix Contact

Product: PSC 1,5/ 3-F

Order#: 1841909

8.3.2. Power-Switch and LEDs

Figure 17: Power-Switch and LEDs



1 Power on
2 LED Power
3 LED Drive Activity

Table 30: Power LED

LED	Signal
Off	No Power
Green	Active
Green blinking	Standby

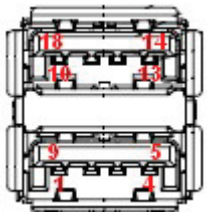
Table 31: Drive Activity

LED	Signal
Off	No Power
Green	Active

8.3.3. USB3.0 Type-A Connector

The power source of +USBVCC can be selected by JP5.

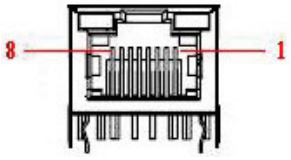
Table 32: Pinout USB3.0 Connector



Pin	Signal Name	Pin	Signal Name
1	+USBA_VCC	10	+USBB_VCC
2	USBA_D-	11	USBB_D-
3	USBA_D-	12	USBB_D-
4	GND	13	GND
5	USBA_RX-	14	USBB_RX-
6	USBA_RX+	15	USBB_RX+
7	GND	16	GND
8	USBA_TX-	17	USBB_TX-
9	USBA_TX+	18	USBB_TX+

8.3.4. GbE RJ-45 Connector

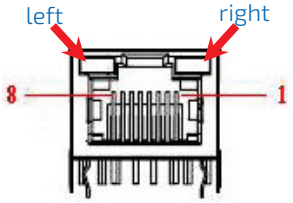
Table 33: Pinout GbE RJ-45 Connector



Pin	Signal Name	Pin	Signal Name
1	TX1+	5	TX3-
2	TX1-	6	TX2-
3	TX2+	7	TX4+
4	TX3+	8	TX4-

8.3.5. LED Diagram of LAN Connectors

Table 8: Status of LEDs from GbE RJ-45 Connector

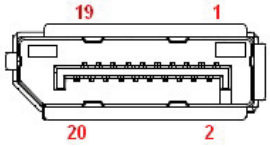


left LED: activity/link		right LED: 10/100/1000	
off	No LAN connectivity	off	10 Mbit
yellow	link	green	100 Mbit
yellow blinking	activity	orange	1 GbE

8.3.6. DisplayPort Connector

The Dual-Mode DisplayPort source automatically detects the presence of a plugged-in Dual-Mode DisplayPort cable adaptor and provides the DVI or HDMI signal, as required, to support the connected DVI or HDMI monitor.

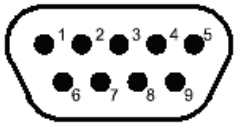
Table 34: Pinout DisplayPort Connector



Pin	Signal	Pin	Signal
1	TX0+	11	GND
2	GND	12	TX3-
3	TX0-	13	GND
4	TX1+	14	GND
5	GND	15	AUX+
6	TX1-	16	GND
7	TX2+	17	AUX-
8	GND	18	HPD
9	TX2-	19	GND
10	TX3+	20	PWR

8.3.7. COM2 RS-232/422/485 (via internal cable connection to CN16, Option)

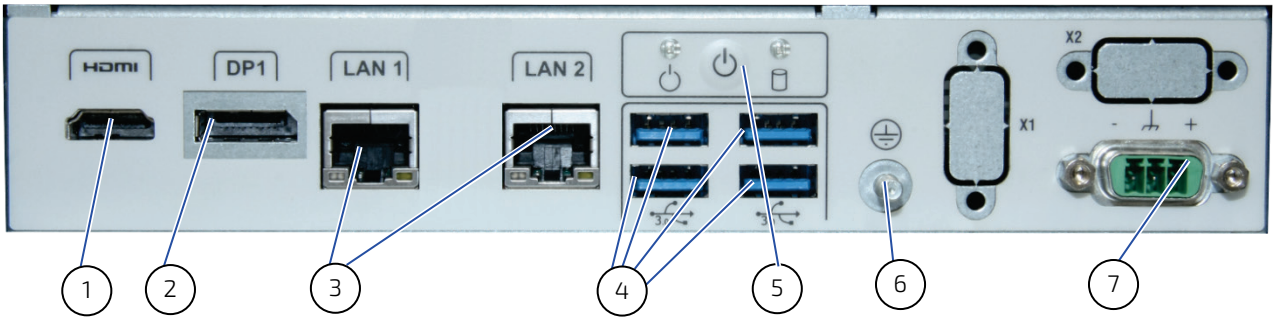
Table 35: Pinout RS-232/422/485 Connector



Pin	RS-232	RS-422	Half Duplex RS-485	Full Duplex RS-485
1	DCD	Tx-	DATA-	Tx-
2	RxD	Tx+	DATA+	Tx-
3	TxD	Rx+	-	Rx+
4	DTR	Rx-	-	Rx-
5	GND	GND	GND	GND
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-
9	RI	-	-	-

8.4. Flatclient PRO Skylake/Kaby Lake

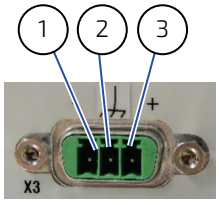
Figure 18: Interfaces for Panel PC FlatClient PRO Skylake/Kaby Lake variant



1 HDMI
2 DP connector
3 2x GbE
4 4x USB 3.0
5 Power/LEDs
6 Earth stud
7 Power connector

8.4.1. Input Power Connector

Figure 19: Input Power



1 GND
2 Shield
3 VCC

Figure 20: Mating Connector

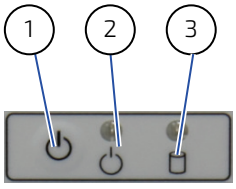
Manufacturer: Phoenix Contact

Product: PSC 1,5/ 3-F

Order#: 1841909

8.4.2. Power-Switch and LEDs

Figure 21: Power-Switch and LEDs



1 Power on
2 LED Power
3 LED Drive Activity

Table 36: Power LED

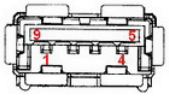
LED	Signal
Off	No Power
Green	Active
Green blinking	Standby

Table 37: Drive Activity

LED	Signal
Off	No Power
Green	Active

8.4.3. USB3.0 Type-A Connector

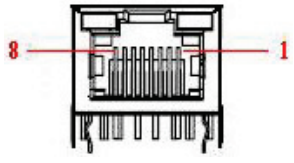
Table 38: Pinout USB 2.0



Pin	Signal Name	Pin	Signal Name
1	+USB_VCC	5	USB_RX-
2	USB_D-	6	USB_RX+
3	USB_D+	7	GND
4	GND	8	USB_TX-
		9	USB_TX+

8.4.4. GbE RJ-45 Connector

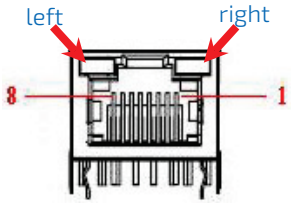
Table 39: Pinout GbE RJ-45 Connector



Pin	Signal Name	Pin	Signal Name
1	TX1+	5	TX3-
2	TX1-	6	TX2-
3	TX2+	7	TX4+
4	TX3+	8	TX4-

8.4.5. LED Diagram of LAN Connectors

Table 8: Status of LEDs from GbE RJ-45 Connector

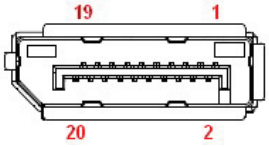


left LED: activity/link		right LED: 10/100/1000	
off	No LAN connectivity	off	10 Mbit
yellow	link	green	100 Mbit
yellow blinking	activity	orange	1 GbE

8.4.6. DisplayPort Connector

The Dual-Mode DisplayPort source automatically detects the presence of a plugged-in Dual-Mode DisplayPort cable adaptor and provides the DVI or HDMI signal, as required, to support the connected DVI or HDMI monitor.

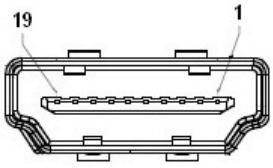
Table 40: Pinout DisplayPort Connector



Pin	Signal	Pin	Signal
1	TX0+	11	GND
2	GND	12	TX3-
3	TX0-	13	GND
4	TX1+	14	GND
5	GND	15	AUX+
6	TX1-	16	GND
7	TX2+	17	AUX-
8	GND	18	HPD
9	TX2-	19	GND
10	TX3+	20	PWR

8.4.7. HDMI Connector

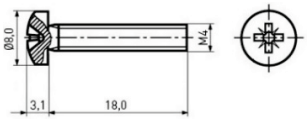
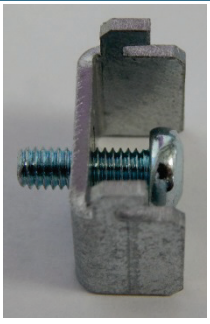
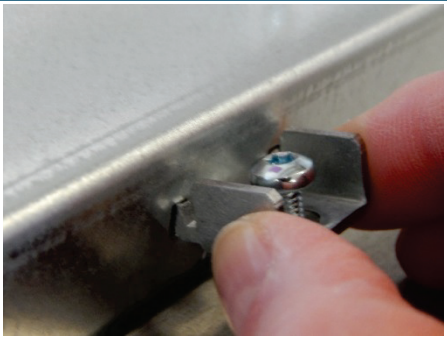
Table 41: Pinout HDMI Connector

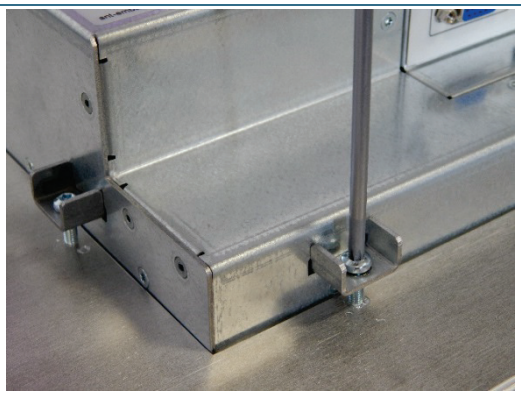
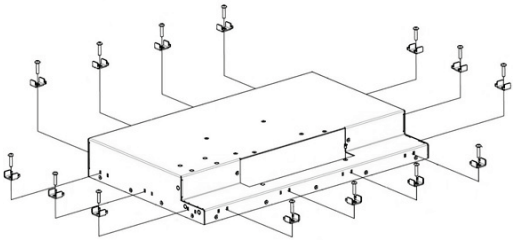


Pin	Signal Name
1	TMDS Data2+
2	GND
3	TMDS Data2–
4	TMDS Data1+
5	GND
6	TMDS Data1–
7	TMDS Data0+
8	GND
9	TMDS Data0–
10	TMDS Clock+
11	GND
12	TMDS Clock–
13	Reserved
14	Reserved
15	DDC_CLK
16	DDC_DATA
17	GND
18	+5 V Power
19	Hot Plug Detect

9/ Installation and Start

9.1. Mounting Instructions (built-in-variant only)

Step	Installation	Description
1	  	▶ Use mounting set with screws and clamping brackets ▶ Lens head Screw Philips M4x12 ▶ DIN 7985 - ISO 7045 ▶ Use Philips head Screwdriver
2		▶ Pre-assembly: Insert the screw into clamping bracket ▶ Note the right direction!
3		▶ Insert the clamping bracket into your system

Step	Installation	Description
4		▶ Fix the bracket with the screw to the housing
5	 	▶ Repeat step 4 for all positions of clamping bracket

9.2. Startup Procedure

To activate your FlatClient Panel PC connect the power supply to power connector on the FlatClient back side. Alternative use the mating power connector for connecting your power cable. The LED “PWR” gives a green light now.

Don´t hesitate to ask for support:
e-mail: **support@kontron.com**
Phone: **+49-821-4086-888**

All essential drivers you´ll find on www.snt-embedded.de

10/ Technical Support

For technical support, please contact Kontron **http://www.kontron.com/support**

To request support via e-mail, report documentation errors, or general customer feedback, use Kontron's Contact Support form by visiting:

http://www.kontron.com/about-kontron/company-overview/contact-us/forms/contact-support.

In case the request form does not work or you do not get a response within 48 hours, follow up with support@kontron.com

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

- Product name,
- Product Model number
- Serial number (SN) of the unit

The serial number can be found on the type label, placed on the rear side of the system.

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

10.1. Warranty

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

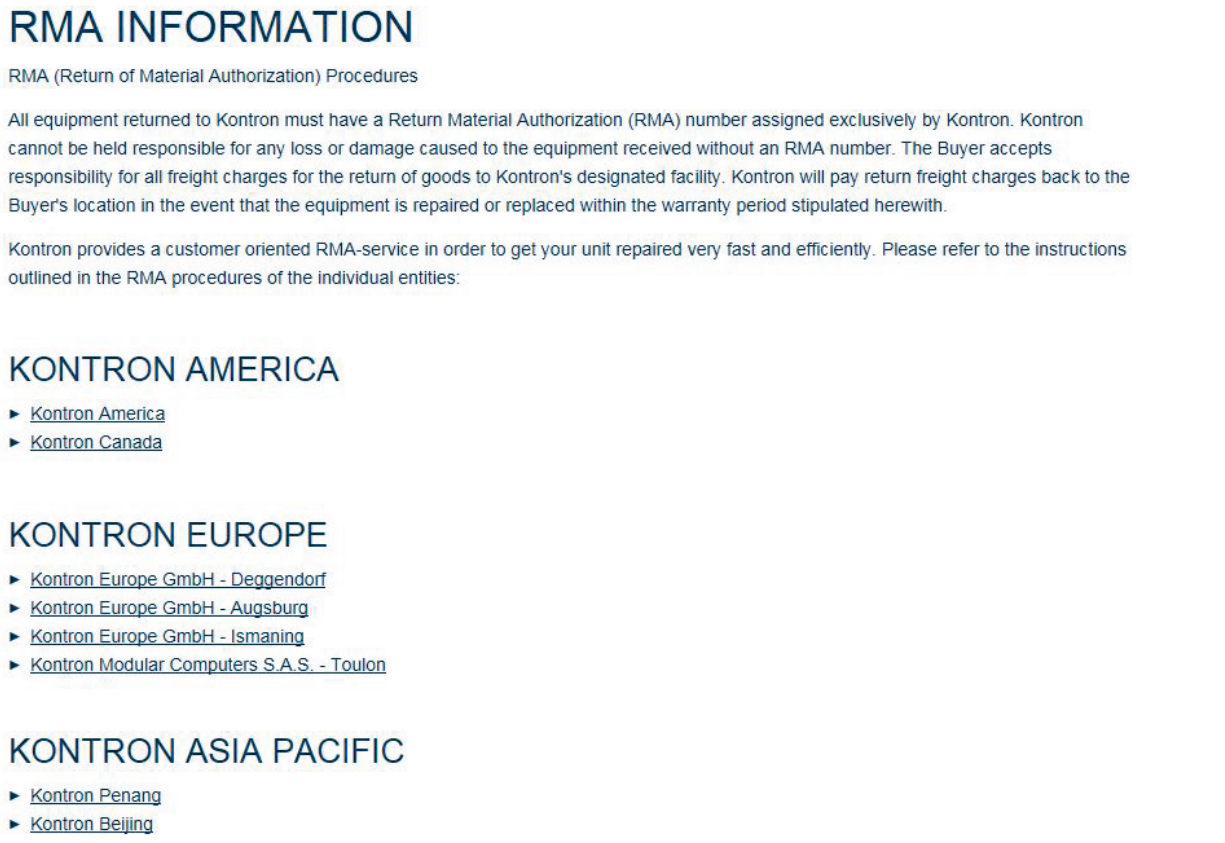
There is a protection label on your FlatClient Monitor.
If the product is opened, the warranty is lost!

10.2. Returning Defective Merchandise

All equipment returned to Kontron must have a Return 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 return freight charges back to the Buyer's location in the event that the equipment is repaired or replaced within the warranty period stipulated herewith.

Please follow these steps before returning any product to Kontron.

Visit the RMA Information website:
http://www.kontron.com/support-and-services/support/rma-information



RMA INFORMATION

RMA (Return of Material Authorization) Procedures

All equipment returned to Kontron must have a Return 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 return freight charges back to the Buyer's location in the event that the equipment is repaired or replaced within the warranty period stipulated herewith.

Kontron provides a customer oriented RMA-service in order to get your unit repaired very fast and efficiently. Please refer to the instructions outlined in the RMA procedures of the individual entities:

KONTRON AMERICA

- Kontron America
- Kontron Canada

KONTRON EUROPE

- Kontron Europe GmbH - Deggendorf
- Kontron Europe GmbH - Augsburg
- Kontron Europe GmbH - Ismaning
- Kontron Modular Computers S.A.S. - Toulon

KONTRON ASIA PACIFIC

- Kontron Penang
- Kontron Beijing

Download the RMA Request sheet for Kontron Europe GmbH and fill out the form. Take care to include a short detailed description of the observed problem or failure and to include the product identification (product name, material number and serial-number). If more than one product is sent in a delivery. Fill out the above information in the RMA Request form for each product.

1. Send the completed RMA-sheet to the given fax- or email-address at Kontron Europe GmbH. Kontron Europe GmbH will provide an RMA-Number within one business day.

2. The goods for repair shall be packed properly for shipping, considering shock- and ESD-protection.

Goods returned to Kontron Europe GmbH in non proper packaging will be considered as customer caused faults and cannot be accepted as warranty repairs.

3. Add the RMA-sheet to the relevant delivery address and include the RMA-No into shipping paperwork. Sent the product to the following delivery address:

   Kontron Europe GmbH
   RMA Support
   Phone: +49 (0) 821 4086-0
   Fax: +49 (0) 821 4086 111
   Email: service@kontron.com

4. After Kontron Europe GmbH receives the product, a confirmation of the order is sent via email to the address named on the RMA sheet. This order number is your RMA number.

Appendix A: List of Acronyms

API	Application Programming Interface
BMC	Base Management Controller
CLI	Command-Line Interface
COM	Computer-on-Module
ECC	Error Checking and Correction
FRU	Field Replaceable Unit
GPU	Graphics Processing Unit
HD/HDD	Hard Disk /Drive
HPM	PICMG Hardware Platform Management specification family
IOT	Internet of Things
KCS	Keyboard Controller Style
KVM	Keyboard Video Mouse
MEI	Management Engine Interface
NCSI	Network Communications Services Interface
PCIe	PCI-Express
PECI	Platform Environment Control Interface
RTC	Real Time Clock
SEL	System Event Log
SMBus	System Management Bus
SMWI	System Monitor Web Interface
SOL	Serial Over LAN
SSH	Secure Shell
TPM	Trusted Platform Module
UEFI	Unified Extensible Firmware Interface
VLP	Very Low Profile

About Kontron

Kontron is a global leader in Embedded Computing Technology (ECT). As a part of technology group S&T, Kontron 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: **http://www.kontron.com/**

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