

## AHD 12XX / AHD 11XX PC Panels / Displays



# Installation Instructions

Addendum to Operation Manual for Panel PCs/Displays 12XX/11XX

Please also read the corresponding operation manual before beginning any work!



Dok-ID: PaB-1139 V8

ART.-Nr. 4575 EN



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## General Information

### Change History

#### for Installation Instructions AHD 12XX / AHD 11XX

Date	Version	Reason for Change	Page	Author
02/13/2012	AHD_12XX_11XX_Montageanleitung_EN_V1_20120213	Creation of installation instructions	n.a.	Pasuki, Bahram (PaB)
Jul 5th, 2012	AHD_12XX_11XX_Montageanleitung_EN_V2_20120705	New panel cutout templates for 15" and 19"	16-19	Pasuki, Bahram (PaB)
Jul 22 <sup>nd</sup> , 2013	AHD_12XX_11XX_Montageanleitung_EN_V3_20130722	Advice for additional gasket added	20	Pasuki, Bahram (PaB)
Aug 29 <sup>th</sup> , 2013	AHD_12XX_11XX_Montageanleitung_EN_V4_20130829	Viewing Angles for AHD 1219x / AHD 1119 X changed.	12	Pasuki, Bahram (PaB)
Nov 6 <sup>th</sup> , 2013	AHD_12XX_11XX_Montageanleitung_EN_V5_20131106	Installation pictures adapted Installation depth defined	14, 15	Pasuki, Bahram (PaB)
March 13 <sup>th</sup> , 2014	AHD_12XX_11XX_Installation_Guide_EN_V6_20140313	Name of English document changed. Earthing advice added.	25	Pasuki, Bahram (PaB)
July 23 <sup>rd</sup> , 2015	AHD_12XX_11XX_Installation_Guide_EN_V7_20150723	Torque values adapted.	23	Pasuki, Bahram (PaB)
Sep 8 <sup>th</sup> , 2015	AHD_12XX_11XX_Installation_Guide_EN_V8_20150908	Torque values adapted due to new gaskets	23	Pasuki, Bahram (PaB)

# 1 General Information

## 1.1 About these Installation Instructions

**Read these installation instructions carefully before beginning any work! It is a part of the Operation Manual for panel PCs / displays of the AHD 12XX G / AHD 11XX G / AHD 12XX F/ AHD 11XX F series, and it is only valid for use with the operation manuals with the above listed devices.**

**When handing the product over to third parties, these installation instructions must be included.**

These installation instructions are a part of the corresponding operation manual. They contain important information about the proper installation procedures for Panel PCs / Displays AHD 12XX G / AHD 11XX G / AHD 12XX / AHD 11XX F.

Adhering to all product safety and handling instructions for the product and all connected components is a prerequisite for safe operation.

In addition, the local accident prevention and general safety rules for the device's area of operation must be observed.

The illustrations in this manual are intended to demonstrate the contents more clearly. They are not necessarily drawn to scale and can vary from the actual product in minor details.

## 1.2 Explanation of Symbols

### Warnings

In this manual, warnings are marked by symbols. The warnings are introduced by signal words indicating the degree of danger.

**It is important to heed these warnings and act with caution to avoid accidents, personal injury and property damage!**



#### **DANGER!**

... indicates an imminently hazardous situation that can result in death or severe injury, if not avoided.



#### **WARNING!**

... indicates a potentially hazardous situation which can result in death or severe injury, if not avoided.

## General Information

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### CAUTION!

... indicates a potentially hazardous situation that can result in minor or light injury, if not avoided.



### CAUTION!

... indicates a potentially hazardous situation that can result in property damage, if not avoided.

### Tips and Recommendations



### TIP!

... indicates useful tips and recommendations and information for efficient and error-free operation.

## 1.3 Limitation of Liability

All information and instructions in this manual have been compiled in consideration of current norms and regulations, the state of technology, and our knowledge and experience of many years.

The manufacturer is not responsible for damages due to:

- Noncompliance with the instructions in this manual
- Unintended use
- Employment of untrained personnel
- Unauthorized modifications
- Technical modifications
- Use of unauthorized spare parts

The actual scope of delivery can vary from the explanations and illustrations in this manual in case of customized models, special ordering options, or the latest technical improvements.

In addition, the agreed upon obligations in the delivery contract, the general terms and conditions, the manufacturer's delivery terms and the legal regulations current at the contract signing are in force.

We reserve the right to make changes to improve the device's service properties and to further develop the product.

All regulations regarding the corresponding devices' operation manuals also apply, without limitation, to these installation instructions.

## 2 Safety

This chapter provides an overview of all important safety aspects for optimal protection of the personnel as well as safe and error-free operation.

Noncompliance with the handling and safety instructions listed in this manual can cause significant hazards.

### 2.1 Operator's Responsibilities

This product is intended for commercial use. Therefore, its operation is subject legal workplace safety regulations.

In addition to the workplace safety instructions in this manual, the current safety, accident prevention, and environmental protection regulations for the product's place of use must be observed. Especially:

- The operator must stay abreast of the current workplace safety regulations and determine through a risk assessment any additional hazards resulting from the special working conditions of the product's place of use. He must implement these in the form of operating instructions for the product's use.
- During the product's entire period of operation, the operator must verify that his operating instructions are in compliance with current regulations and revise them, if necessary.
- The operator must clearly regulate and define areas of responsibility for installation, operation, maintenance and cleaning.
- The operator must ensure that all employees handling the product have read and understood these installation instructions.

In addition, he must train the personnel in regular intervals and inform them about any dangers.

Furthermore, the operator is responsible for always keeping the product in perfect working condition.

### 2.2 Personnel Requirements

#### 2.2.1 Qualifications



**WARNING!**

**Risk of injury from insufficient qualifications!**

Improper handling can lead to significant personal injury and property damage.

Therefore:

- Only allow qualified personnel to do any work.

## Safety

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This manual lists the following qualifications for various areas of activity.

■ **Trained Person**

has been trained by the operator through an orientation for the assigned tasks and has been informed about possible hazards from improper execution.

■ **Specialist**

is able to execute the assigned tasks and recognize and avoid potential hazards independently due to formal training, knowledge and experience, as well as knowledge of the situational norms and regulations.

■ **Electrician**

is able to work on electrical systems and recognize and avoid potential hazards independently due to formal training, knowledge and experience, as well as knowledge of the situational norms and regulations.

The electrician is trained for the specific work site in which he is active and knows the relevant norms and regulations.

Only those persons who can be expected to do their work reliably are permitted as personnel. Persons, whose responsiveness is diminished by e.g. drugs, alcohol, or medication, are not permitted.

- Observe the local and profession specific regulations when selecting the personnel.



### 3 Introduction

Special care must be taken when installing the Panel PCs / Displays ADH 12XX / AHD 11XX to avoid damaging these devices.

Prior to installation, panel cutouts must be sawed, and holes must be drilled for the bolts. The corresponding dimension drawings can be found in Chapter 4 of this document.

It is imperative to observe the devices' installation depths. More detailed instructions for installation locations, installation depths, and installation angles can be found in the corresponding operation manual, available from the manufacturer (if it is not present).



**TIP!**

*These installation instructions outline and further explain the installation of a 19 inch panel PC / display.*

*However, all steps are also fully valid for installing 15 inch displays.*

The mounting frame, included in the delivery, ensures an equal distribution of force when tightening the fixture nuts. Therefore, do not install these devices without the mounting frame.



**CAUTION!**

If the fixture nuts are tightened without using the mounting frame, the devices may be irreparably damaged!

Furthermore, the mounting frame serves as a template for marking the cutout and the drill holes for the mounting bolts.

## Introduction

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### 3.1 Required Tools

The following tools are required for installing the panel PCs / displays:

- jigsaw (saw blade for corresponding panel material, e.g. wood or metal)
- drill, 5 mm bit (bit according to panel material)
- spirit level (for ensuring levelness of the installation location)
- torque wrench (for torque 3 Nm)
- file, if needed
- counter bore, if needed

#### 3.1.1 Hardware AHD 1219 X / AHD 1119 X

The following hardware pieces (included in the delivery) are required for installing panel PCs / displays:

- mounting frame (454 x 384 mm; 10 drill holes), used as a template for panel cutout and drill holes
- 10 x spring washer M4
- 10 x washer M4
- 10 x hexagonal nut M4

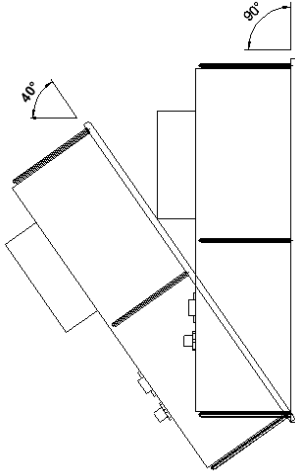
#### 3.1.2 Hardware AHD 1215 X / AHD 1115 X

The following hardware pieces (included in the delivery) are required for installing panel PCs / displays:

- mounting frame (384 x 324 mm; 8 drill holes), used as template for panel cutout and drill holes
- 8 x spring washer M4
- 8 x washer M4
- 8 x hexagonal nut M4

## 3.2 Installation Location

### 3.2.1 Installation Angle



**TIP!**

*The correct installation angle must be observed when installing Panel PCs AHD 12XX / Displays AHD 11XX.*

*The installation angle is 40° – 90° to the horizontal plane.*

*A smaller installation angle may affect the visibility of the visualized data!*

*Observe all instructions regarding the viewing angle in the corresponding operation manuals!*



**TIP!**

*Ensure accessibility of the device interfaces when installing the devices!*

## 3.3 Preparation

The support surface for the panel PCs' / displays' frame must be even and straight. Uneven or warped surfaced cause the device to tilt, damaging it. In addition the tightness between frame and panel can no longer be guaranteed.

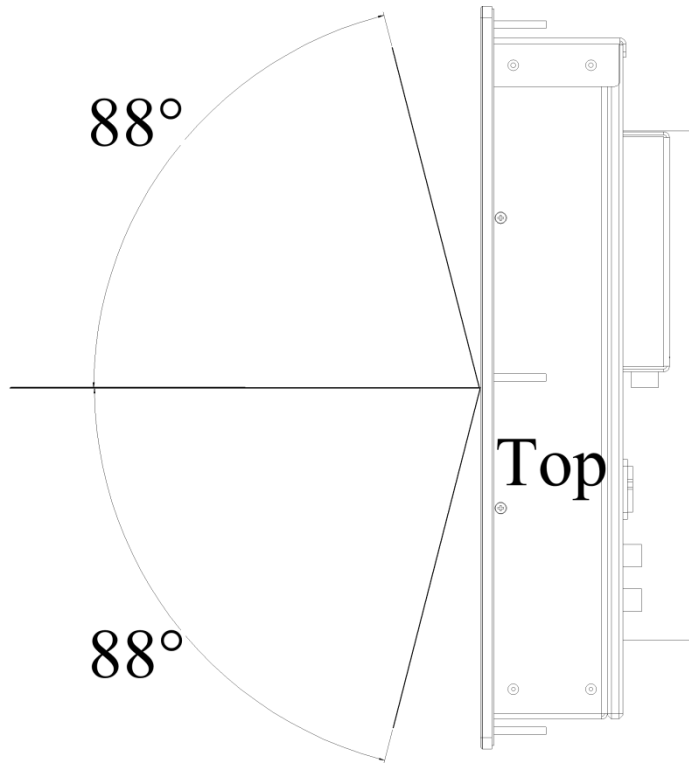
Therefore, first use the spirit level to ensure the intended support surface is even and straight.

If necessary, remove any existing unevenness.

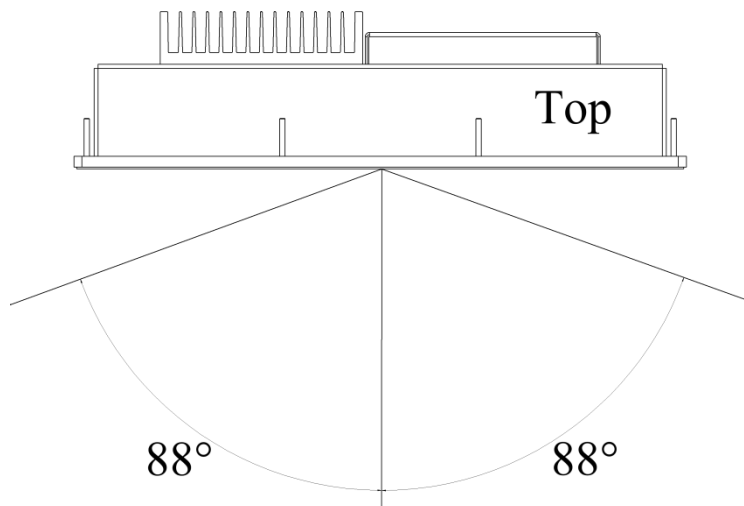
**Introduction**

**3.4 Viewing Angle AHD 1219 X / AHD 1119 X**

On the Panel PCs AHD 1219 X / Displays AHD 1119 X, the screen display can be viewed best at an angle of less than 88° to the vertical of screen from above, from the side and from the bottom.



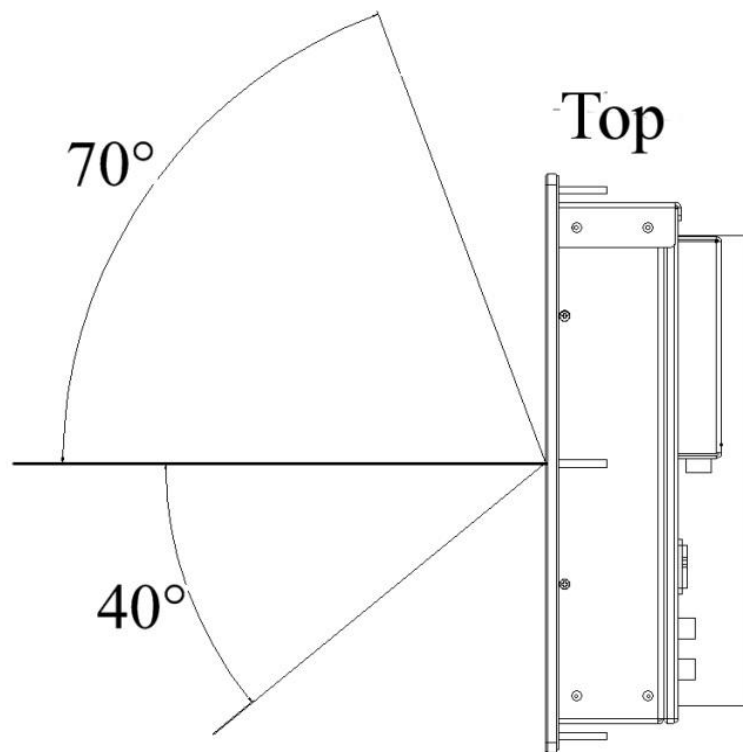
*Viewing angle from above and below*



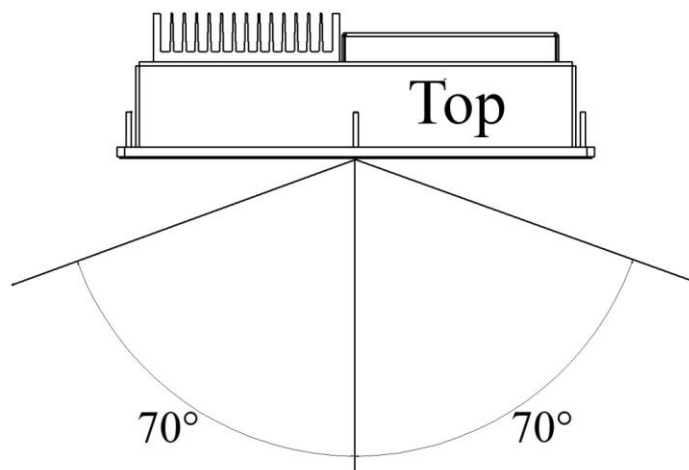
*Viewing angle from the side*

### 3.5 Viewing Angle AHD 1215 X / AHD 1115 X

On the Panel PCs AHD 1215 X / Displays AHD 1115 X, the screen display can be viewed best at an angle of less than  $70^\circ$  to the vertical of screen from above and the side, and an angle of less than  $40^\circ$  from the bottom.



*Viewing angle from above and below*



*Viewing angle from the side*

## Introduction

### 3.6 Console Installation

#### 3.6.1.1 AHD 12XX



#### CAUTION!

#### Property damage from insufficient cooling!

Insufficient cooling of the Panel PCs AHD 12XX can lead to property damage or system errors.

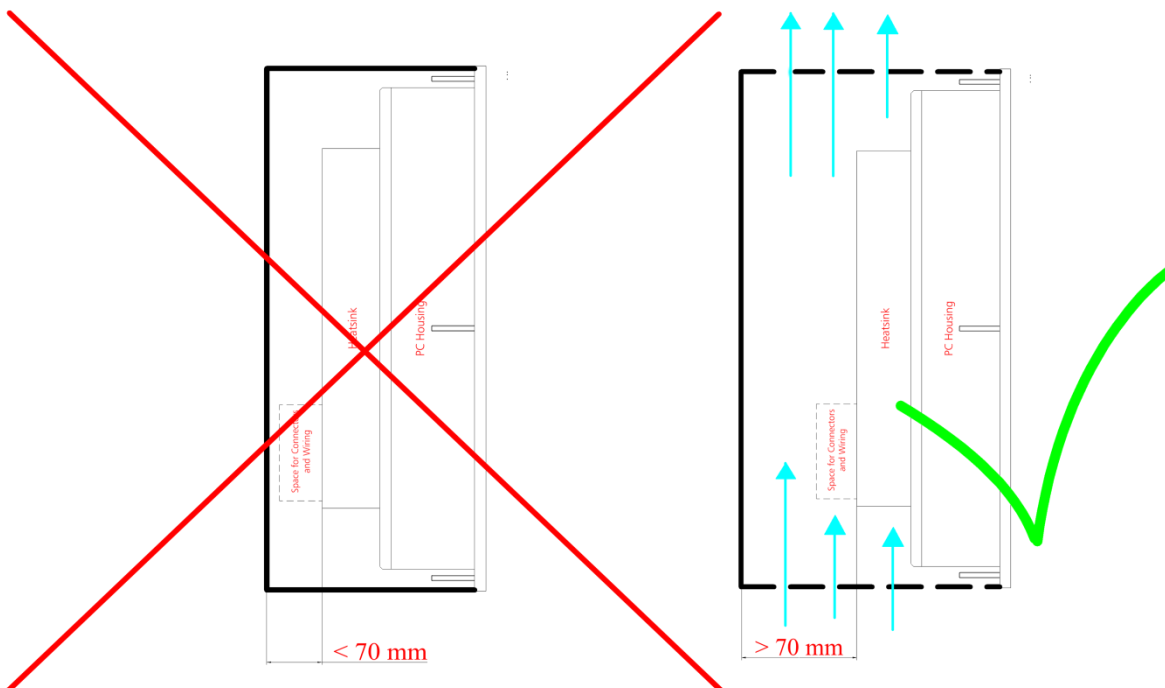
Therefore:

- Only install the devices in housings/panels with ventilation slits.
- When selecting the installation location, ensure airflow can circulate and cool the devices. The distance between the cooling element and the housing/switching board wall must be at least 70 mm to ensure proper cooling.



#### TIP!

*In addition to the required distance of 70mm to the board wall the device installation depth of 140mm must be taken into consideration when designing the console.*



3.6.1.2 AHD 11XX



**CAUTION!**

**Property damage from insufficient cooling!**

Insufficient cooling of the Panel PCs AHD 11XX can lead to property damage or system errors.

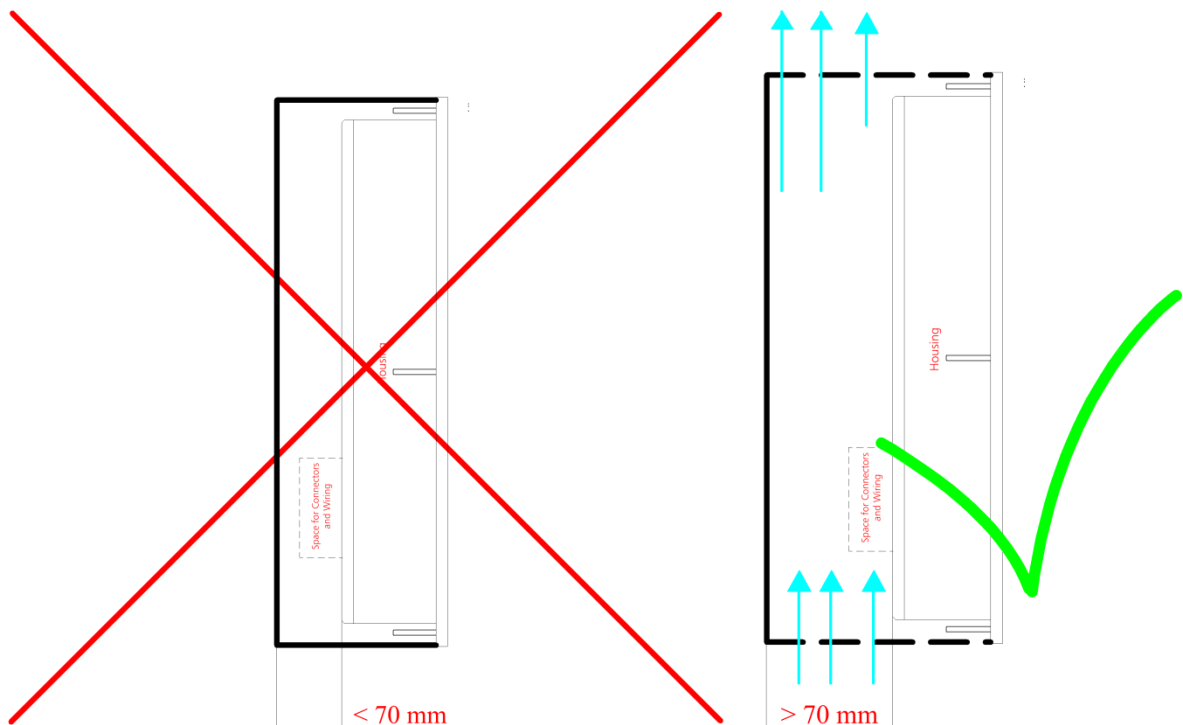
Therefore:

- Only install the devices in housings/panels with ventilation slits.
- When selecting the installation location, ensure airflow can circulate and cool the devices. The distance between the cooling element and the housing/switching board wall must be at least 70 mm to ensure proper cooling.



**TIP!**

*In addition to the required distance of 70mm to the board wall the device installation depth of 140mm must be taken into consideration when designing the console.*



## Panel Cutouts and Drill Holes

### 4 Panel Cutouts and Drill Holes

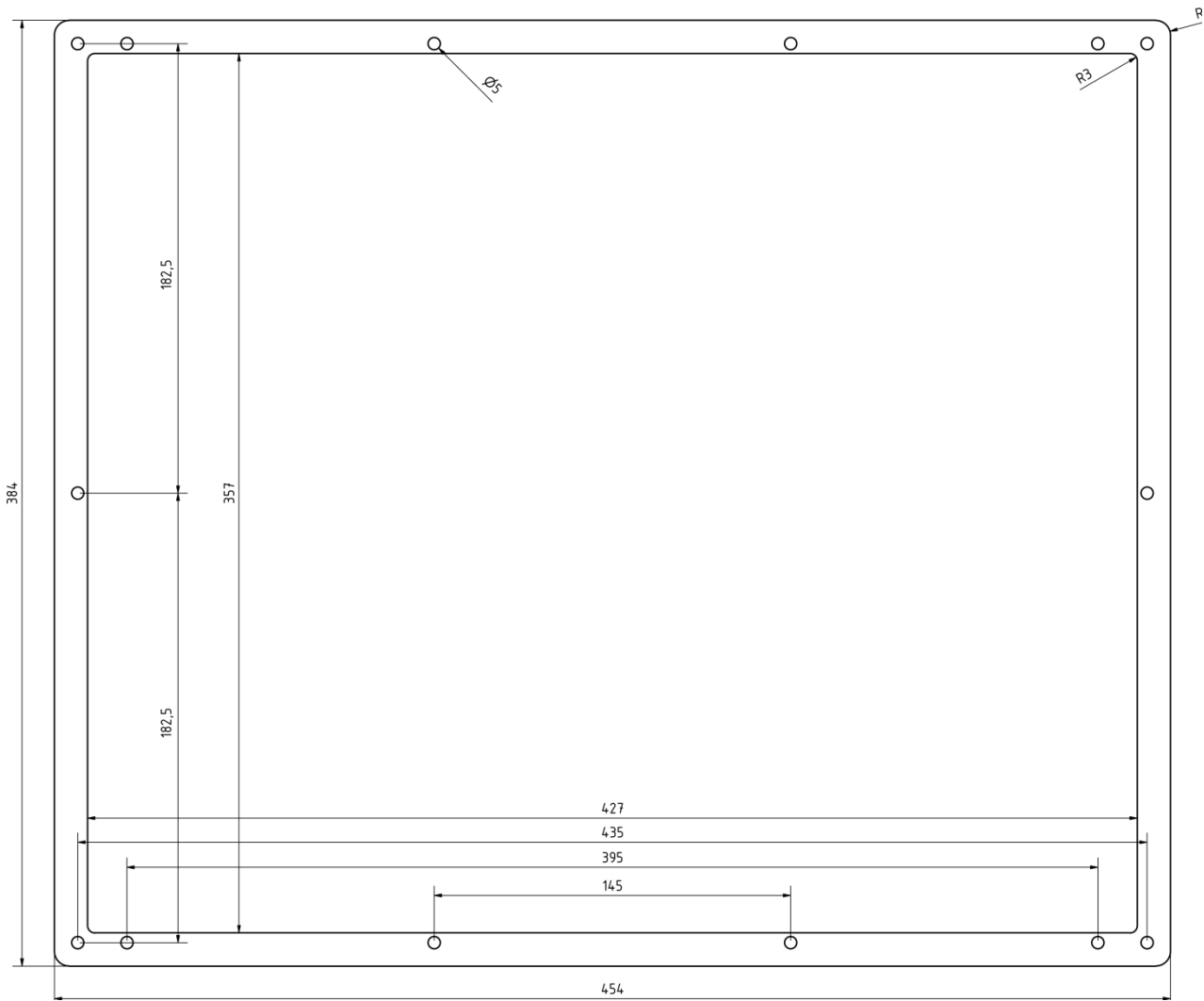
#### 4.1 Panel Cutout and Drill Holes AHD 1219 X / AHD 1119 X



**TIP!**

The dimension drawings in this manual are not drawn to scale!

The included mounting frame can be used as a template.



Panel Cutout: 427 x 357 mm

Drill holes:  $\varnothing 5$  mm



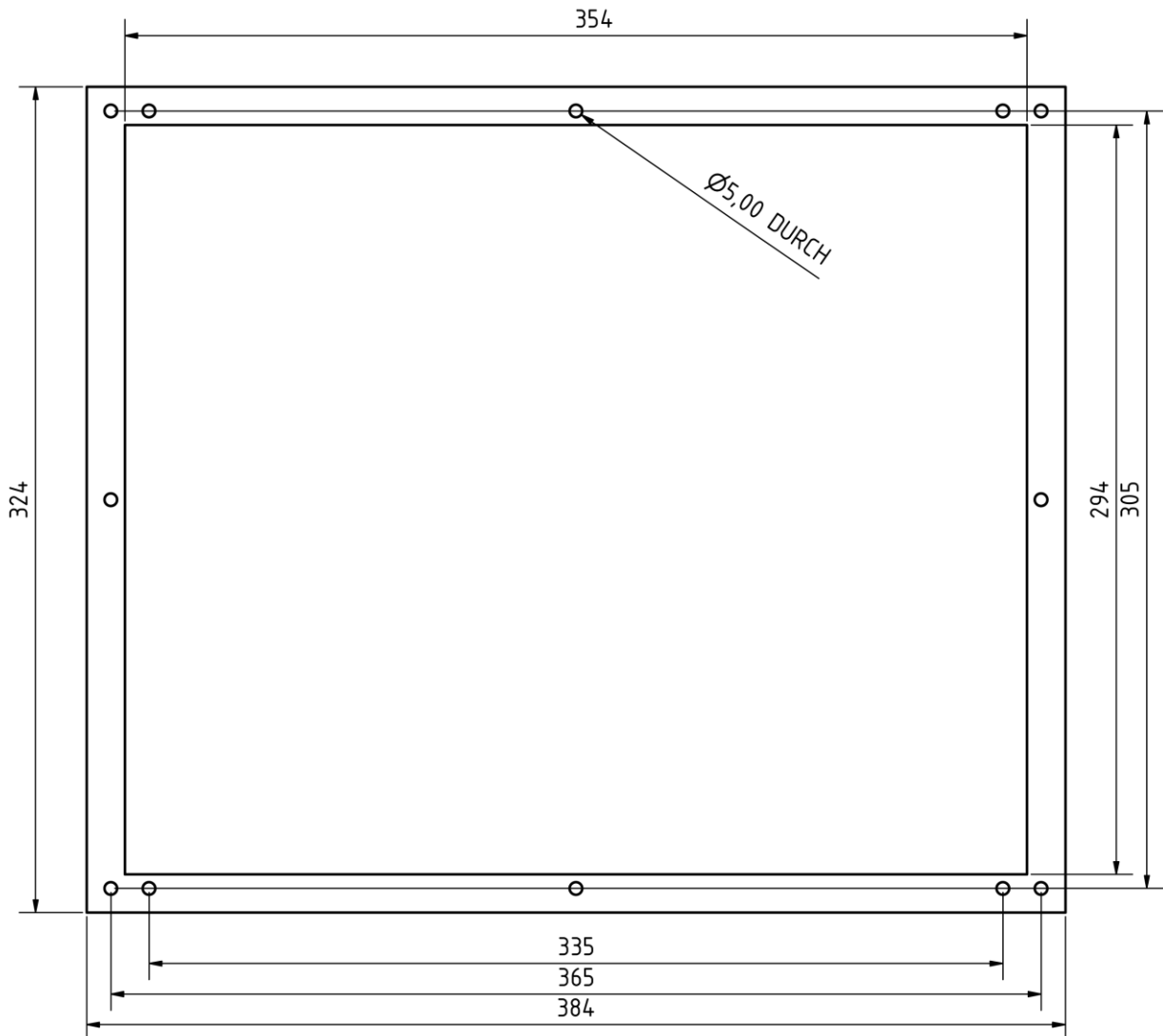
## 4.2 Panel Cutout and Drill Hole AHD 1215 X / AHD 1115 X



**TIP!**

The dimension drawings in this manual are not drawn to scale!

The included mounting frame can be used as a template.



Panel Cutout: 354 x 294 mm

Drill holes: Ø 5 mm

## Installing the Panel PCs / Displays

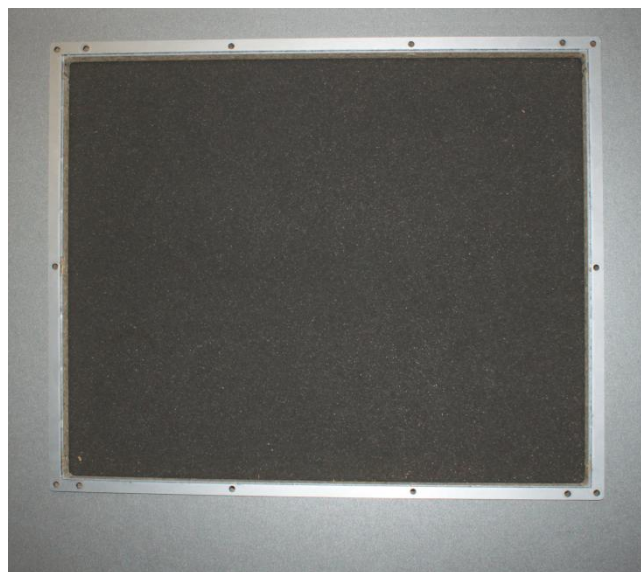
# 5 Installing the Panel PCs / Displays

## 5.1 Marking the Panel Cutouts and Drill Holes

1. Place the mounting frame onto the intended installation location and mark the panel cutout and the drill holes:

19-inch devices → see 4.1;

15-inch devices → see 4.2



*Mounting frame as cutout and drill hole template*



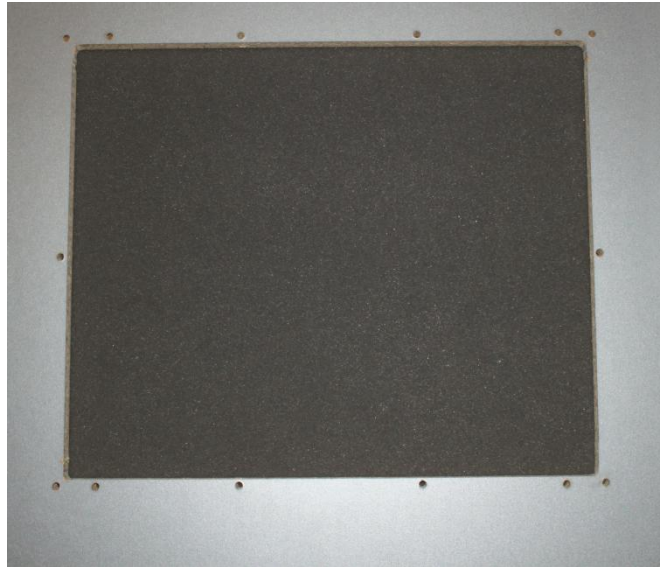
**TIP!**

*The mounting frame for 15-inch devices only has 8 drill holes.*

2. Carefully cut the panel cutout with the jigsaw. Take special care to make smooth, straight cuts.  
If necessary, smooth out any bumps with a file.
3. Drill the holes with a 5 mm bit.  
After drilling, check to see that both sides of the drill hole are smooth and even. Remove any unevenness with a counter bore or file.

## Installing the Panel PCs / Displays

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*Panel cutout and drill holes for mounting bolts*

### 5.2 Outdoor Installation



**TIP!**

*The device features a gasket ensuring the protection class IP 66 (front) when installed into a console.*

*If the surface of consoles, especially those consoles in outdoor areas, should show irregularities, it is advised that a small silicone ring is applied to the surface around the device after installation.*

### 5.3 Installing the Device

1. Carefully place the device into the panel cutout. Make sure that the bolts in the device frame do not bend or are subject to tension.

If a bolt does not freely slide into the drill hole, this drill hole must be reworked.



**CAUTION!**

Bending the bolts can lead to irreparable damage to the display when installing the device!



*Installation – front view*



*Installation – rear view*

## Installing the Panel PCs / Displays

2. Place the mounting frame onto the bolts from the rear. Make sure the bolts do not bend inside the frame or are subject to tension.

If a bolt does not freely slide into the drill hole, this drill hole must be reworked.



### CAUTION!

Bending the bolts can lead to irreparable damage to the display when installing the device!



*Placing the mounting frame*



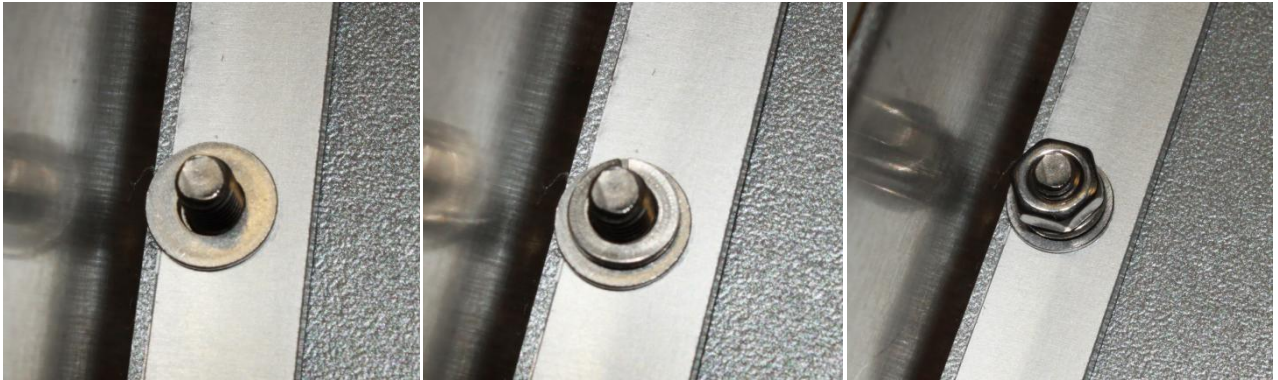
### CAUTION!

If the device is secured without the mounting frame, it may be damaged irreparably!

### 5.4 Securing the Fixture Nuts

1. For mounting, the washer, spring washer, and nut must be installed in a predetermined sequence.

First, screw on the nuts loosely (finger tight)



*First, the washer.....*

*then the spring washer.....*

*finally the nut*

2. Now tighten the nuts with a torque of 2 Nm.

Follow the pattern below.

→ Begin with the interior nuts and tighten them lightly, working from the inside to the outside (torque of 0.5 Nm).

→ Lightly tighten the corner nuts last (torque of 0.5 Nm).

Now repeat the process with a torque of 2 Nm and tighten the nuts again, working from the inside to the outside, tightening the corner nuts last.

Refer also to the tightening pattern shown in 5.5!



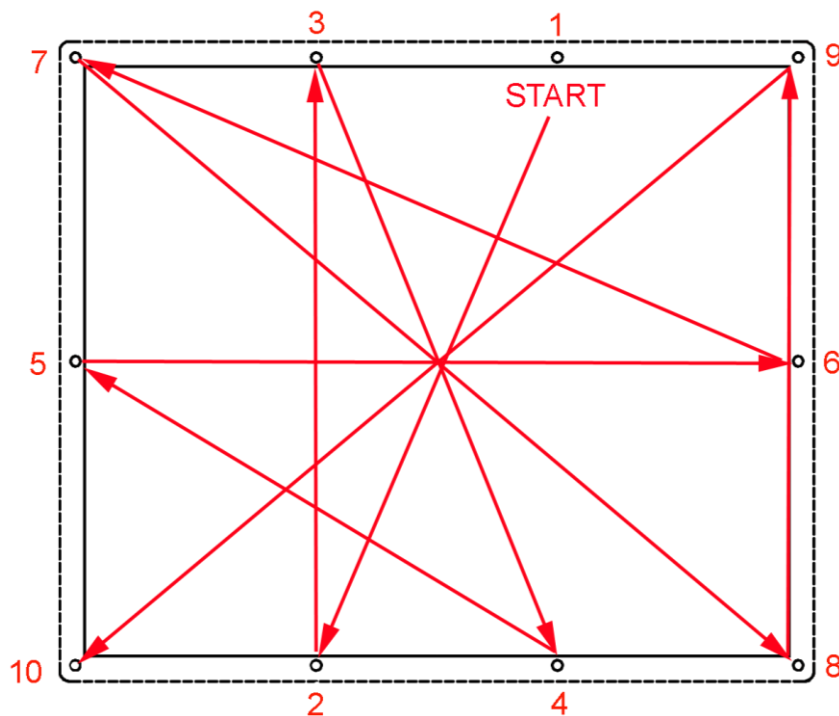
#### **CAUTION!**

Tightening the nuts with a torque greater than 2 Nm can damage the display!

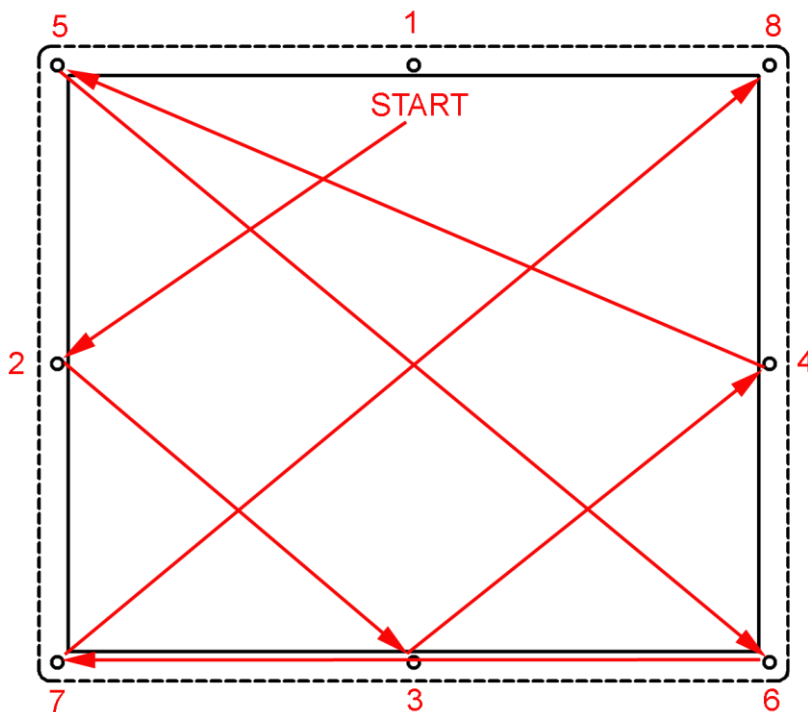
3. Ensure afterwards that the seal's placement is even everywhere on the panel surface.

## Installing the Panel PCs / Displays

### 5.5 Tightening Pattern



*Tightening pattern AHD 1219 X / AHD 1119 X*



*Tightening pattern AHD 1215 X / AHD 1115 X*



## 5.6 Earthing



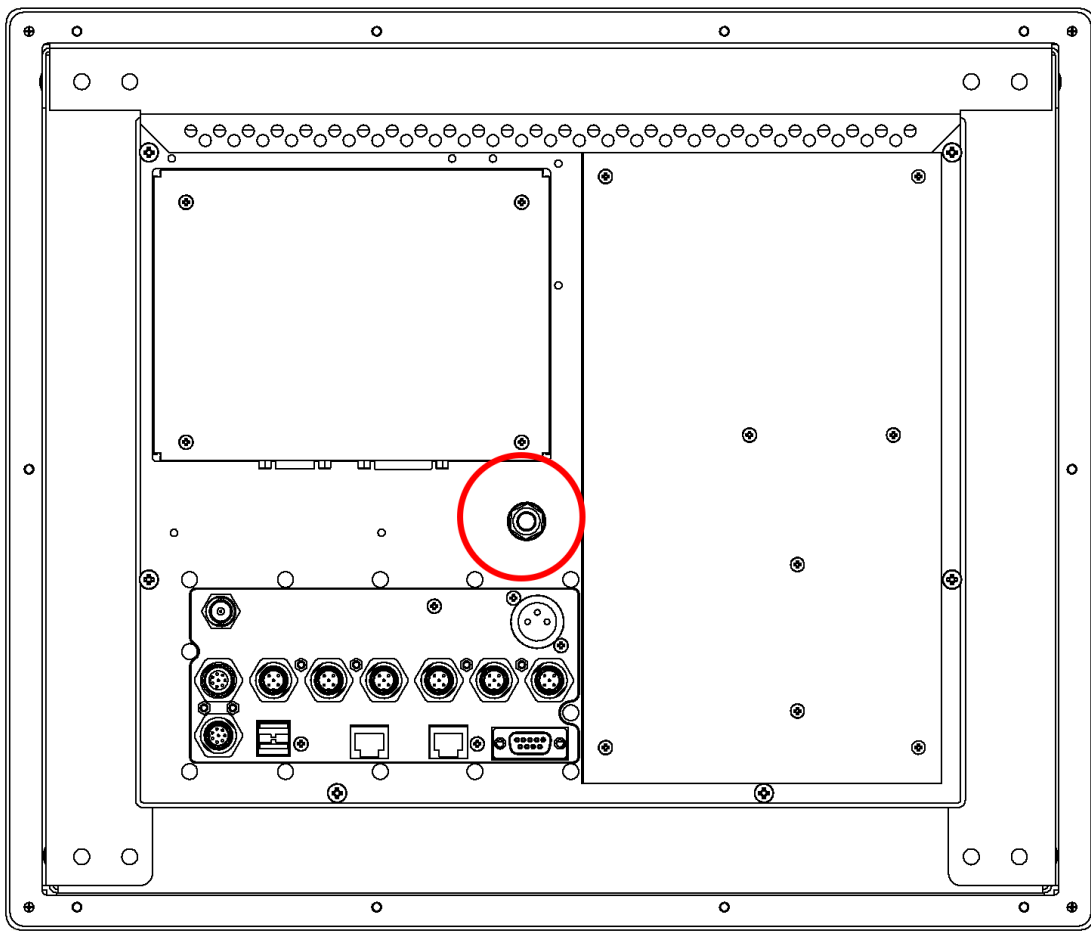
### **CAUTION!**

#### **Property damage and system errors from missing earthing**

A missing earthing of the Panel PCs / Displays can lead to property damage or system errors.

Therefore:

- Earth the device when installing it!  
Only use the earth bolt in the device's area, marked red in the drawing, when earthing the device!



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Control Technology, Ship Automation

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