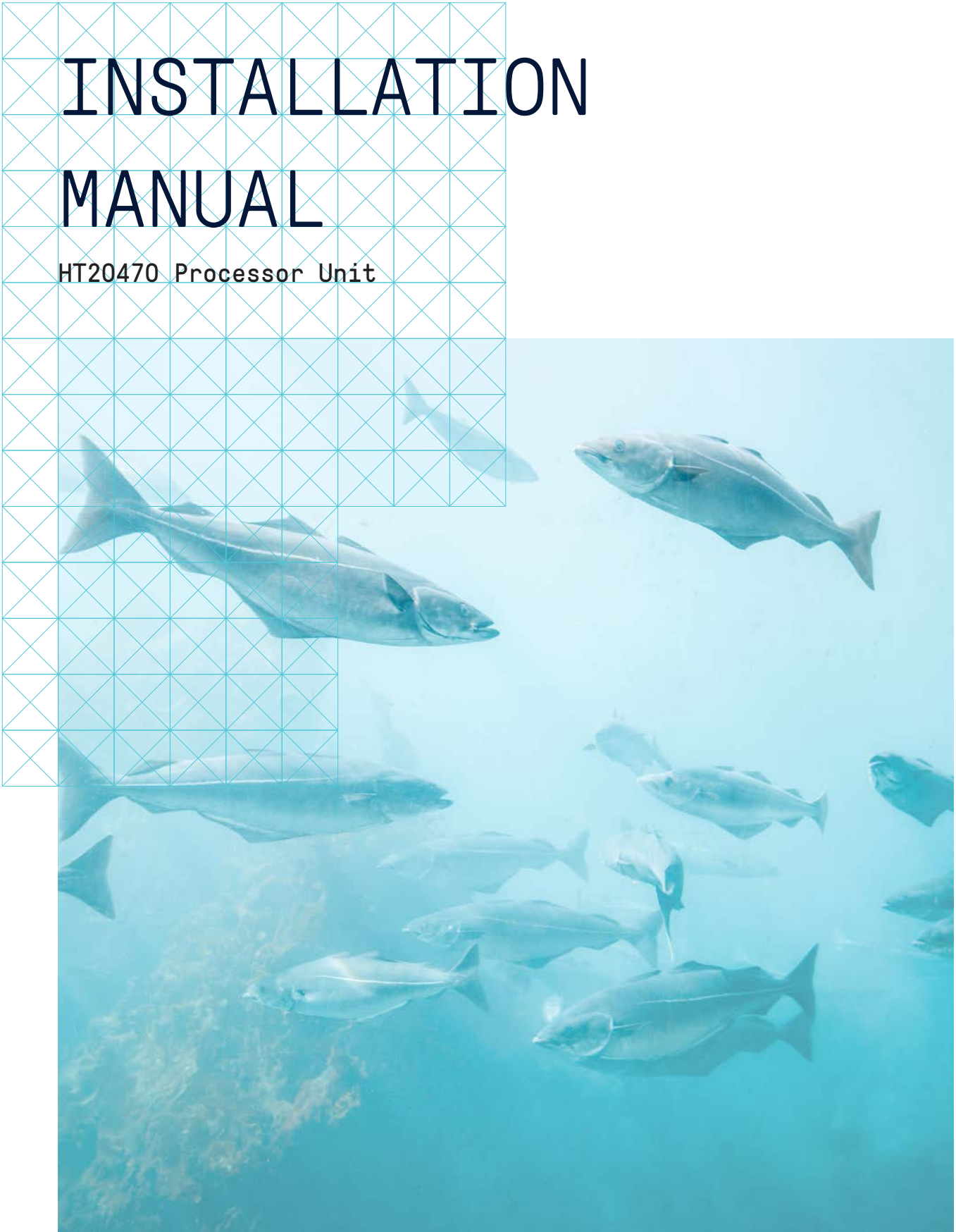




KONGSBERG

# INSTALLATION MANUAL

HT20470 Processor Unit





PUBLIC



KONGSBERG

# ***Simrad HT20470***

## ***Processor Unit***

### ***Installation Manual***

The purpose of this publication is to provide the descriptions and procedures required to install the HT20470 Processor Unit. The publication is intended for technical personnel such as skilled shipyard workers, electricians, qualified engineers and naval architects.

Additional end-user documents related to the sonar system can be found on our website. This includes publications that are translated into other languages. Selected publications are also provided in IETM (*Interactive Electronic Technical Manual*) formats.

- <https://www.kongsberg.com/fisherysonar>

**SIMRAD**  
By KONGSBERG

492671/D

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## **Document information**

- **Product:** Simrad sonar
- **Document:** Installation Manual
- **Document part number:** 492671
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## **Warning**

*The equipment to which this manual applies must only be used for the purpose for which it was designed. Improper use or maintenance may cause damage to the equipment and/or injury to personnel. You must be familiar with the contents of the appropriate manuals before attempting to operate or work on the equipment.*

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# About this manual

The purpose of this publication is to provide the descriptions and procedures required to install the HT20470 Processor Unit.

## **Target audience**

The publication is intended for technical personnel such as skilled shipyard workers, electricians, qualified engineers and naval architects. We assume that you understand the general principles of maritime electronic equipment. You must also be familiar with the installation of electronic and mechanical products. You are expected to have basic mechanical skills and familiarity with handling sensitive electronic equipment.

## **Installation instructions/Installation drawings**

The information in this document must be regarded as guidelines and recommendations.

### **Note**

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*The installation shipyard must provide all necessary design and installation drawings, as well as the relevant work standards and mounting procedures.*

*If required, all documents provided by the shipyard for the physical installation of the sonar system must be approved by the vessel's national registry and corresponding maritime authority and/or classification society. Such approval must be obtained before the installation can begin. The shipowner and shipyard doing the installation are responsible for obtaining and paying for such approval.*

---

Kongsberg Maritime AS will accept no responsibility for any damage or injury to the product, vessel or personnel caused by equipment that has been incorrectly installed or maintained, or by drawings, instructions or procedures that have not been prepared by us. The outline dimensions of the sonar receiver found in the relevant chapter in this manual.

End user manuals and source drawings (normally in AutoCad format) can be downloaded from our website.

- <https://www.kongsberg.com/fisherysonar>

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# Introduction

## Topics

[Processor Unit description, page 7](#)

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## Processor Unit description

The Processor Unit is a rugged and powerful computer. It is designed for long life in a demanding maritime environment. The Processor Unit contains the operational software, and offers the user interface that allows you to control the sonar system. Furthermore, it offers a number of serial and Ethernet lines for communication with external devices. The Processor Unit is normally mounted on the bridge.

In this publication, the computer can also be referred to as the *Processor Unit*, and vice versa.

The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC. A suitable power supply may be provided with the sonar system delivery.

Power supply:

- **Manufacturer:** Mean Well
- **Manufacturer's website:** <https://www.meanwell.com>
- **Type designation:** SDR-240-24
- **Kongsberg Maritime part number:** 488156



## Note

---

*The Processor Unit does not contain any fans. It will be very warm, even during normal operation. This is by design. Airflow around the unit will significantly increase the effect of the heat sinks and thereby also the lifetime of the unit. Such an air flow is highly recommended. The computer has been tested and verified with ambient temperatures up to 50 degrees Celsius. A lower ambient temperature is however positive for the its lifetime.*

---

## Order information

To order the sonar system, or any of the optional items provided with it, contact your local dealer. If you do not have a regular dealer, a list of all our distributors and dealers can be found on our website. Your dealer will also be able to help you with a detailed quotation including price and delivery information.

Relevant order information is provided on our website.

- <https://www.kongsberg.com/fisherysonar>

## Support information

If you need technical support for your sonar system you must contact your local dealer, or one of our support offices. A list of all our offices and dealers is available on our website. You can also contact our main support office in Norway.

### Norway (main office)

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# Installation

## Topics

[Installing the HT20470 Processor Unit, page 11](#)

[Installing the power supply, page 13](#)

## Installing the HT20470 Processor Unit

The Processor Unit can be installed inside a console, inside a suitable cabinet, in a 19" rack or on a desk. The Processor Unit does not contain any fans. It will be very warm, even during normal operation. Make sure that adequate ventilation is available to avoid overheating.

### Prerequisites

You must be equipped with a standard set of tools. This tool set must comprise the normal tools for electronic and electromechanical tasks. This includes different screwdriver types, pliers, spanners, a cable stripper, a soldering iron, etc. Each tool must be provided in various sizes. We recommend that all tools are demagnetized to protect your equipment.

A suitable location for the Processor Unit must be defined before installation. Observe the compass safe distance.

### Context

If you need to install the unit in a 19" rack you must purchase and use the dedicated mounting kit.

- Kongsberg Maritime part number: 473676

Mounting brackets for desktop installation are included with the delivery. Relevant mounting hardware (bolts, nuts and washers) are included.

*Photo:*

*Remove the two plastic blocks located behind each side of the front panel. Fasten the two mounting brackets to the space made available.*

**Note** \_\_\_\_\_

*The Processor Unit does not contain any fans. It will be very warm, even during normal operation. This is by design. Airflow around the unit will significantly increase the effect of the heat sinks and thereby also the lifetime of the unit. Such an air flow is highly recommended. The computer has been tested and verified with ambient temperatures up to 50 degrees Celsius. A lower ambient temperature is however positive for the its lifetime.*

---



## **Procedure**

- 1 Prepare the location and the necessary tools.
- 2 Observe the installation requirements.
  - a Depending on its physical properties, install the computer inside a console, in a cabinet or 19" rack, or on a desk.
  - b Choose a position to fit the available cable lengths between the computer and the other units it connects to.
  - c Observe the compass safe distance.
  - d Make sure that enough space is made available for maintenance purposes.
  - e Make sure that adequate ventilation is available to avoid overheating.
  - f Make sure that the installation method allows for the physical vibration, movements and forces normally experienced on a vessel.

**Note** \_\_\_\_\_

*To allow future maintenance, you must mount the unit with its cables and connectors available for easy access.*

---

- 3 Make sure that the chosen location meets the installation requirements.
- 4 Provide ample space around the computer.

You must be able to reach and use the front and rear mounted connectors and on/off switches. It is also important that you allow for easy access to all the computer cables, and enough space for inspection, maintenance and parts replacement. If relevant: Make sure that the space allows you to open the computer for unobstructed access to its internal parts.

---

**Note**

*Make sure that you can access both the rear and front side of the computer after it has been installed.*

---

- 5 Install the Processor Unit.
  - a Remove the two plastic blocks located behind each side of the front panel.
  - b Fasten the two mounting brackets to the space made available.
  - c Fasten the two mounting brackets to each side of the rear panel.
  - d Mount the cable retaining plate.
  - e Position and fasten the unit using the mounting brackets and appropriate screws or bolts.



*Fasten the two mounting brackets to each side of the rear panel. Mount the cable retaining plate.*

- 6 Connect the cables.

---

**Note**

*When you connect the cables, make sure that they are all properly secured, and able to withstand the vibration and movements of the vessel.*

---

## Installing the power supply

The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC. A power supply is required if a DC powered unit needs to work from an AC supply. The power supply offers a 24 VDC output.

### Prerequisites

A suitable location for the power supply must be defined prior to installation. If you place the unit on the bridge, observe the compass safe distance.

You must be equipped with a standard set of tools. This tool set must comprise the normal tools for electronic and electromechanical tasks. This includes different screwdriver types, pliers, spanners, a cable stripper, a soldering iron, etc. Each tool must be provided in various sizes. We recommend that all tools are demagnetized to protect your equipment.

### Context

The power supply can be installed in many ways.

- You can mount it on a 35 mm DIN rail. An existing DIN rail can be used.
- You can mount it using any means available.

Observe the following requirements to free space over, under and on each side of the unit:

- Space above: 40 mm
- Space below: 20 mm
- Space on each side: 5 mm

If the adjacent device is a heat source: 15 mm

### Note

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*The DIN rail is not included with the delivery. Mounting hardware (bolts, nuts and washers) are not included with the delivery. These are commercial items that can be purchased locally.*

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Power supply:

- **Manufacturer:** Mean Well
- **Manufacturer's website:** <https://www.meanwell.com>
- Type designation: SDR-240-24
- Kongsberg Maritime part number: 488156

### Procedure

- 1 Find a suitable location for the power supply.
- 2 Prepare the location and the necessary tools.
- 3 Observe the installation requirements.
  - a Make sure that enough space is made available for maintenance purposes.
  - b Make sure that the installation method allows for the physical vibration, movements and forces normally experienced on a vessel.
- 4 Make sure that the chosen location meets the installation requirements.
- 5 Installation using a DIN rail:
  - a Mount the DIN rail.
  - b Mount the unit using the relevant mounting hardware.



- 6 "Ad hoc" installation
  - a Place the unit in a suitable location (horizontally or vertically).
  - b Position and fasten the unit using any means available.
- 7 Connect the cables.

Note \_\_\_\_\_

*When you connect the cables, make sure that they are all properly secured, and able to withstand the vibration and movements of the vessel.*

---

# Cable layout and interconnections

## Topics

[Read this first, page 16](#)

[Topside cable plan, page 18](#)

[List of topside cables, page 19](#)

[Comments, page 20](#)

[Processor Unit rear panel description: HT20470 \(DC Version\), page 22](#)

[Powered audio output, page 25](#)

[Moxa CP114EL-I Serial line adapter, page 26](#)

[Power supply connectors, page 28](#)

## Read this first

Detailed information about cable specifications, termination and connectors is provided. Unless otherwise specified, all cables are supplied by Kongsberg Maritime as a part of the delivery.

Detailed information about relevant cable specifications, termination and connectors is provided. Each drawing provides additional information, and may, when applicable, include minimum specifications, connector terminations and the required number of cores. Drawings are generally not provided for standard commercial cables. Cables fall into three categories.

### System cables

System cables are provided by Kongsberg Maritime as a part of the delivery.

### **Shipyard cables**

Shipyard cables must be provided by the shipyard doing the installation, or the shipowner. The cables must meet the minimum specifications provided in this publication.

### **Commercial cables**

Commercial cables may be provided by Kongsberg Maritime as a part of the delivery. The cables may also be included with third party items that are used with the sonar system.

All electric installations and corresponding wiring must be in accordance with the vessel's national registry and corresponding maritime authority and/or classification society.

### **Note**

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*It is very important that all cables are properly installed and correctly terminated. Observe the relevant regulations and work standards. Always leave enough cable slack close to system units and cabinets to allow for maintenance.*

*Only skilled and authorized personnel can install the sonar cables.*

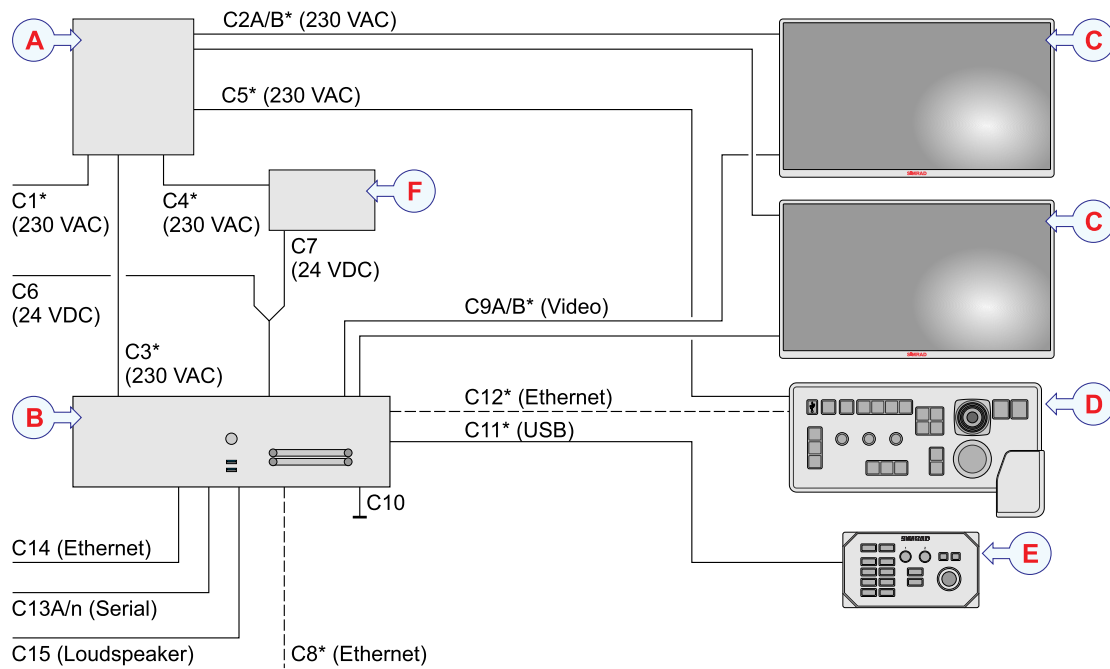
*Kongsberg Maritime accepts no responsibility for damage to the system, or reduced operational performance, when this is caused by improper wiring.*

*Before you install or maintain the system cables, make sure that the AC mains circuit breaker for the system is disconnected.*

---

## Topside cable plan

The topside/bridge cables include those used to connect the Processor Unit and the display to each other, as well as cables for AC mains power and external devices. The connection between the Processor Unit and the operating panel is also shown.



- |  |                                       |
|--|---------------------------------------|
| <b>A</b> <i>Uninterruptible power supply (UPS)</i> | <b>D</b> <i>Operating Panel (Mk2)</i> |
| <b>B</b> <i>Processor Unit</i>                     | <b>E</b> <i>Operating Panel (Mk3)</i> |
| <b>C</b> <i>Display</i>                            | <b>F</b> <i>Power Supply Unit</i>     |

Cables identified with an asterisk (\*) are system or commercial cables. These cables are provided in the delivery or with the relevant item. Cable numbers that are not used are spares for optional equipment and/or future expansions.

The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC. A power supply is required if a DC powered unit needs to work from an AC supply. The power supply offers a 24 VDC output.

The sonar system supports two different operating panels.

For more information about the cables, see: *Comments*.

## List of topside cables

Each topside cable used by the sonar system is listed.

Cable	Type	From	To	Minimum requirements / Comments
C1	AC Power cable	Uninterruptible power supply (UPS)	Vessel AC power	2 x 1.5 mm <sup>2</sup> + 1.5 mm <sup>2</sup> Ground
C2	AC Power cable	Display	Uninterruptible power supply (UPS)	2 x 1.5 mm <sup>2</sup> + 1.5 mm <sup>2</sup> Ground
C3	AC Power cable	Processor Unit	Uninterruptible power supply (UPS)	2 x 1.5 mm <sup>2</sup> + 1.5 mm <sup>2</sup> Ground
C4	AC Power cable	Power Supply Unit	Uninterruptible power supply (UPS)	2 x 1.5 mm <sup>2</sup> + 1.5 mm <sup>2</sup> Ground
	This cable is only required if the DC version of the Processor Unit needs to operate from AC power.			
C5	AC Power cable	Operating Panel	Uninterruptible power supply (UPS)	2 x 1.5 mm <sup>2</sup> + 1.5 mm <sup>2</sup> Ground
	This cable is only used with Operating Panel Mk2.			
C6	DC Power cable	Processor Unit	Vessel DC power	2 x 6 mm <sup>2</sup>
C7	DC Power cable	Processor Unit	Power Supply Unit	2 x 6 mm <sup>2</sup>
C8	Ethernet cable	Processor Unit	Sonar room	Cat 5e STP (Shielded Twisted Pair)
C9	Video cable	Processor Unit	Display	This is a commercial cable.
C10	Ground cable	Processor Unit	Vessel ground	1 x 6 mm <sup>2</sup>
C11	USB cable	Processor Unit	Operating Panel	This is a commercial cable.
	This cable is only used with Operating Panel Mk3.			
C12	Ethernet cable	Processor Unit	Operating Panel	This is a commercial cable.
	This cable is only used with Operating Panel Mk2.			
C13	Serial cable	Processor Unit	External device(s)	2 x 4 x 0.5 mm <sup>2</sup>
C14	Ethernet cable	Processor Unit	Local Area Network (LAN)	This is a commercial cable.
C15	Audio cable	Processor Unit	Loudspeakers	2 x 0.25 mm <sup>2</sup>

For more information about the cables, see: *Comments*.

## Comments

Some of the cables used by the sonar system require additional explanations and recommendations.

### **Cable numbers**

Cable numbers that are not used are spares for optional equipment and/or future expansions.

### **Project cables**

The sonar system is often a part of a project delivery. For such deliveries, specific project cable drawings are established to show all the main cables, and how the various products are connected. In such project cable drawings, the sonar system cables may be identified as **sonar/Cx**.

### **C1, C2, C3, C4, C5 AC Power cables**

Standard commercial AC mains power cables are used. Each cable is supplied with the relevant unit. The typical length of a power cable is between 1.5 and 2.5 metres. If the power cable provided is too short you must use an extension cable (not recommended), mount a new power outlet within range, or make your own power cable with sufficient length.

**C4:** This cable is only required if the DC version of the Processor Unit needs to operate from AC power.

### **C6 DC Power cable**

The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC. This cable is only required if the Processor Unit operates from DC power.

### **C7 DC Power cable**

The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC. A power supply is required if a DC powered unit needs to work from an AC supply. This cable is only required if the DC version of the Processor Unit needs to operate from AC power.

### **C8 Ethernet cable**

The maximum length of the Ethernet cable is 100 meters. It is very important that high-quality Ethernet cables are used. Do not make the connection using the existing local area network (LAN).

We strongly recommend that you install a spare Ethernet cable between the sonar room and the bridge.

Connect the cable to: **LAN4**

### **C9 Video cable**

This is a commercial cable. The display cable is often physically attached to the display, and terminated in the “computer end” with a male connector. If the cable is not attached, it is normally provided with the display. Keep the display cable

as short as possible. If the cable is too long, it may pick up electric noise, and this will reduce the image quality. The graphic adapter on the Processor Unit provides several display connectors. With more than one display connected, use the operating system functionality to control the presentations.

Note \_\_\_\_\_

*Do not use the DisplayPort connectors (B).*

---

### **C12 Ethernet cable**

This is a commercial cable. This cable is only used with Operating Panel Mk2.

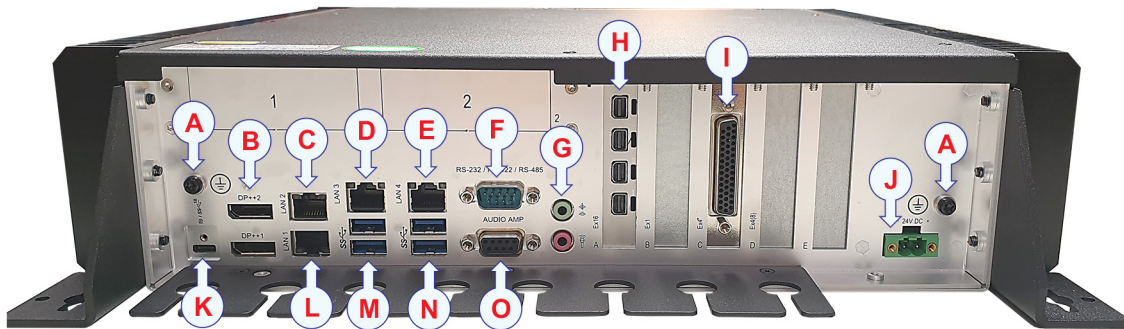
Connect the cable to: **LAN3**

### **C13 Serial cable**

If you wish to use RS-422 or RS-485 serial communication, use a cable with twisted pairs. More than one serial line cable may be required to connect the computer to external devices. To identify these cables, use postfix letters. (C13A, C13B, C13C...).

## Processor Unit rear panel description: HT20470 (DC Version)

The rear panel of the Processor Unit holds the power socket and multiple interface ports.



- |          |   |          |                                       |
|----------|---|----------|---------------------------------------|
| <b>A</b> | <i>Ground</i>                               | <b>I</b> | <i>Serial ports (COM1-4)</i>          |
| <b>B</b> | <i>Graphics adapter (Not used)</i>          | <b>J</b> | <i>DC power socket</i>                |
| <b>C</b> | <i>Ethernet connector (LAN2)</i>            | <b>K</b> | <i>USB-C port (Not used)</i>          |
| <b>D</b> | <i>Ethernet connector (LAN3)</i>            | <b>L</b> | <i>Ethernet connector (LAN1)</i>      |
| <b>E</b> | <i>Ethernet connector (LAN4)</i>            | <b>M</b> | <i>USB 3.0 ports</i>                  |
| <b>F</b> | <i>Serial port (COM5)</i>                   | <b>N</b> | <i>USB 3.0 ports (Wake-up on USB)</i> |
| <b>G</b> | <i>Audio input/output</i>                   | <b>O</b> | <i>Powered audio output</i>           |
| <b>H</b> | <i>Graphics adapter (Mini DisplayPorts)</i> |          |                                       |

### Ethernet connectors

The purpose of each Ethernet connector is predefined.

#### LAN1 Spare

Not used.

#### LAN2 Ship network

Use this socket if you want to connect your sonar system to the ship's local area network (LAN).

#### LAN3 Simrad Connect

Use this socket for Ethernet communication with other Simrad products. The Mk2 Operating Panel must be connected to this Ethernet socket.

#### LAN4 Sonar room/Transceiver

Use this socket for Ethernet communication with the relevant sonar system unit in the sonar room. It is very important that a high-quality Ethernet cable is used. You



must use Cat 5e STP (Shielded Twisted Pair) quality or better. Using cables with lower bandwidth capacity will reduce performance.

The maximum length of the Ethernet cable is 100 meters.

### **Serial line connectors**

Maximum length for an RS-232 serial cable is typically 60 meters with 2400 bps data rate, however this depends on the cable quality. Always check the cable manufacturers specifications for the actual "shunt capacitance". A common figure is 47.5 pF/m, which gives a maximum cable length of about 50 meters.

Even though a standard exist for RS-232 pin configuration, certain manufacturer may still choose their own connector pins for the various signals used. In order to make the RS-232 connection to your peripheral device work properly, you must always consult the relevant instructions provided by the device manufacturer.

#### **Note**

---

*Observe that long runs of unshielded cable will pick up noise easily. This is because the RS-232 signals are not balanced.*

---

### **COM1/COM2/COM3/COM4**

This serial port is set up for RS422 communication. In order to set up the serial ports to match your interface requirements, use the dedicated software utility in the device driver. If you need to change these settings, contact your local dealer or distributor for advice. You can also contact our support department.

### **COM5**

This serial port is set up for RS232 communication. This serial communication format is fixed and cannot be changed. This serial port may not be fitted on all computer models.

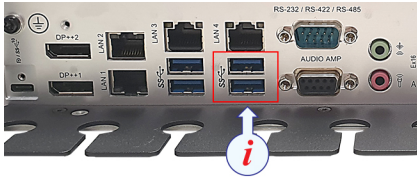
Use USB-to-serial converters if additional serial lines are required. Several types are commercially available. Note that most USB-to-serial converters will introduce some latency. They may also introduce jitter in the communication. The amount of jitter depends on the quality of the converter.

### **USB connectors**

The Processor Unit offers several USB interface sockets. The USB sockets can be used to interface peripheral devices such as USB flash drives, portable hard disks, mouse and keyboard. USB is normally not used to interface peripheral devices, but this may be possible if you use USB to Serial converters. Note that most USB-to-serial converters will introduce some latency. They may also introduce jitter in the communication. The amount of jitter depends on the quality of the converter.

Dedicated USB ports are provided for the "Wake-up on USB" functionality. "Wake-up on USB" means that you can turn on the sonar system by activating any USB device

connected to a compatible USB port. The computer BIOS (Basic Input/Output System) must be modified to support this functionality.



The relevant USB sockets are identified with a rectangle on the illustration.

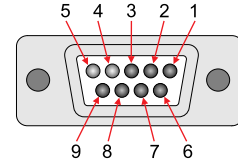
## Powered audio output

The Processor Unit offers a powered audio output. One or two loudspeakers can be connected to the output. The output is rated to 2 W for each channel.

You need a 9-pin male D-Subminiature connector. This is a commercial item that can be purchased locally.

Note \_\_\_\_\_

*This connection is specific for the HT20470 computer.*



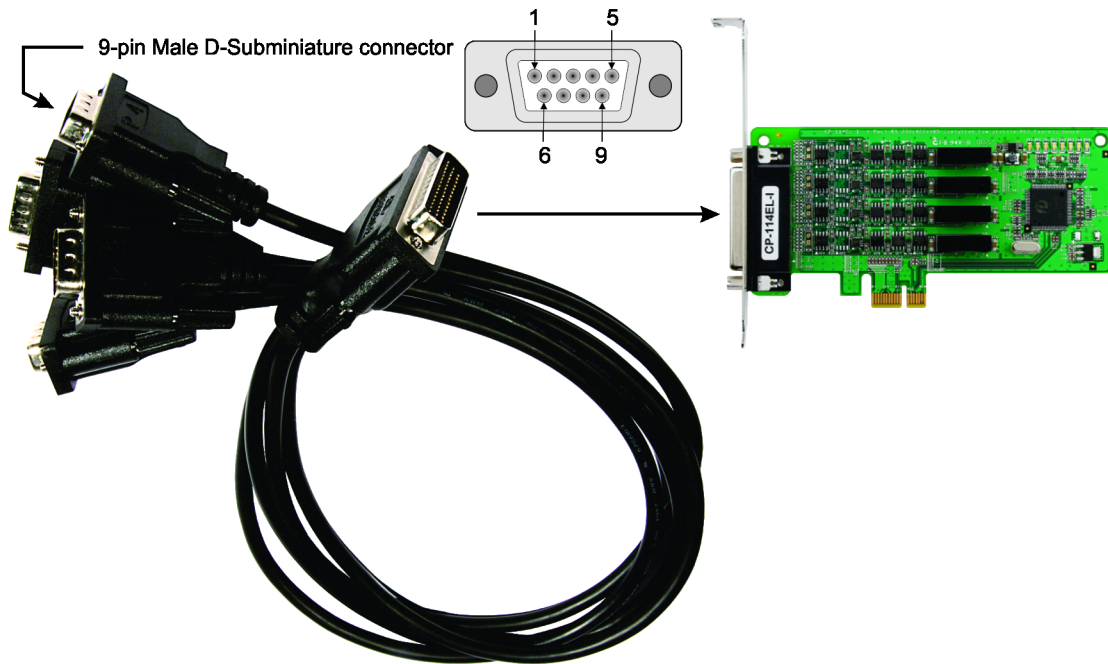
Pin	Signal
1	Left channel
2	Left channel / Ground
3	Right channel
4	Right channel / Ground
5-9	Not used

### Minimum cable requirements

- **Conductors:** 2 x 0.25 mm<sup>2</sup>
- **Screen:** None
- **Voltage:** 24 V
- **Maximum outer diameter:** Defined by the plugs and/or the cable gland

## Moxa CP114EL-I Serial line adapter

The Processor Unit is equipped with a Moxa CP114EL-I serial adapter board. The serial adapter offers four serial ports. The serial lines are provided as a large D-Subminiature connector on the rear side of the computer.



The Moxa CP114EL-I serial adapter supports RS-232, RS-422 and RS-485 (both 2 and 4-wire). The connections to the board are made using a converter cable with four 9-pin male D-subminiature connectors. The converter cable is supplied with the Processor Unit.

- **Manufacturer:** Moxa
- **Manufacturer's website:** <https://www.moxa.com>



Unless otherwise specified, this cable must be provided by the installation shipyard. If you wish to use RS-422 or RS-485 serial communication, use a cable with twisted pairs.

### Note

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*Observe that long runs of unshielded cable will pick up noise easily. This is because the RS-232 signals are not balanced.*

---

Maximum length for an RS-232 serial cable is typically 60 meters with 2400 bps data rate, however this depends on the cable quality. Always check the cable manufacturers specifications for the actual "shunt capacitance". A common figure is 47.5 pF/m, which gives a maximum cable length of about 50 meters.

Even though a standard exist for RS-232 pin configuration, certain manufacturer may still choose their own connector pins for the various signals used. In order to make the

RS-232 connection to your peripheral device work properly, you must always consult the relevant instructions provided by the device manufacturer.

### Pin configuration

Moxa CP114EL-I connectors / Adapter cable				
Pin	RS-232	RS-422	RS-485 (4-wire)	RS-485 (2-wire)
1	DCD	TXD-(A)	TXD-(A)	
2	RxD	TXD+(B)	TXD+(B)	
3	TxD	RXD+(B)	RXD+(B)	Data-(B)
4	DTR	RXD-(A)	RXD-(A)	Data-(A)
5	Ground	Ground	Ground	Ground
6	DSR	-	-	-
7	RTS	-	-	-
8	CTS	-	-	-
9		-	-	-

### Minimum cable requirements

- **Conductors:** 2 x 5 x 0.5 mm<sup>2</sup>
- **Screen:** Overall braided
- **Voltage:** 60 V
- **Maximum outer diameter:** Defined by the plugs and/or the cable gland

If you wish to use RS-422 or RS-485 serial communication, use a cable with twisted pairs. If you need to install a very long cable, increase the cross section.

## Power supply connectors

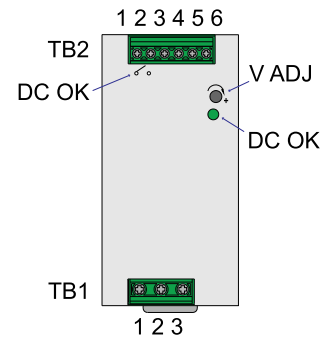
The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC.

A suitable power supply may be provided with the sonar system delivery. The power supply offers a 24 VDC output. Connections are made using two terminal boards.

- **Manufacturer:** Mean Well
- **Manufacturer's website:** <https://www.meanwell.com>
- **Type designation:** SDR-240-24
- **Kongsberg Maritime part number:** 488156

Note

*This connection is specific for the HT20470 computer.*



### Connections

TB1 Input (88-264 VAC)		TB2 Output (DC voltage)	
Pin	Voltage	Pin	Voltage
1	Ground	1,2	Relay contacts
2	Neutral	3,4	+24 VDC
3	Live	5,6	Ground

# Setting to work

## Topics

[Visual inspection of the Processor Unit, page 30](#)

[Installing the operating software, page 31](#)

[Obtaining and installing a software license for additional functionality, page 33](#)

[Enabling "Wake-up on USB" functionality, page 34](#)

[Setting up the complete sonar system, page 36](#)

## Visual inspection of the Processor Unit

A visual inspection of the Processor Unit is required to verify that the unit has not been physically damaged during the installation.

### Prerequisites

The sonar system hardware units are installed as specified in this manual. The sonar system is turned off. You need the following equipment:

- Multimeter

### Procedure

- 1 Make sure that the computer is installed in the correct location, and that it is suitably oriented for replacement and cabling.
- 2 Make sure that the physical installation of the unit has been completed.
  - a Make sure that you have free access to rear and front side connectors on the computer.
  - b Make sure that ample space is provided to open/close DVD and/or CD lids (if relevant), and to insert and remove USB flash drives.
  - c Make sure that ample ventilation is provided to avoid overheating.
  - d Make sure that ample space is provided around the unit to allow for maintenance and replacement of parts.
  - e Make sure that the bolts, screws or studs that have been used are all of the correct size.
  - f Make sure that the correct flat and shake-proof washers have been used.
  - g Make sure that all the nuts have been tightened properly.
  - h If applicable: Make sure that all welds and brackets have been painted with the correct preservation medium to prevent corrosion.
- 3 Make sure that the unit is not physically damaged, and that the surfaces and paint-work are clean without dents or scratches.

The physical handling during the installation may have caused some minor scratches to the surfaces or paint-work. This can be accepted. However, if rough handling has caused serious damage, this must be recorded with a written statement and necessary photos, so that corrective actions can be made.

- 4 Make sure that the unit is firmly connected to ship's ground.
  - a Make sure that the unit is securely connected to the ship's ground with an earthing strap. The strap must be in addition to any incidental electrical contact made by the mounting lugs on the unit.
  - b Use a standard multimeter to check that the resistance between the unit and the ship's ground is approximately 0 (zero)  $\Omega$ .
- 5 Make sure that cable installation has been completed.



- a Make sure that all cables leading to and from the unit have been properly mounted and secured.
  - b Make sure that enough slack has been provided on each cable to allow for maintenance and replacement.
- 6 Make sure that the unit has been identified with the relevant product label(s), and that one label includes the part and serial numbers.

### Result

Requirements	Results
The Processor Unit is correctly installed with easy access for maintenance and replacement of parts.	
The Processor Unit is new, clean and free from scratches, dents or other physical damage.	
Free access to all the connectors on the Processor Unit is provided. All cables are properly mounted with enough slack.	
The Processor Unit can be fully opened for access to the internal parts.	
The Processor Unit is properly connected to vessel ground.	
Date and signature:	

## Installing the operating software

A dedicated wizard is used to install the software. The Processor Unit is shipped without the sonar software installed. The operating system has been modified to make the computer work with the sonar system.

### Prerequisites

The following specific items are required for this task:

- Personal computer (if applicable)
- Software media (USB flash drive) (included with delivery)
- Software license code (if applicable)
- Computer mouse (Optional)
- Computer keyboard (Optional)

Neither tools nor instruments are required.

### Context

This procedure is made for the Microsoft® Windows® 10 operating system. It is assumed that you are familiar with this operating system.

Note

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*The software release note may contain additional details related to the software installation.*

---

**Procedure**

- 1 If applicable: On the personal computer:
  - a Download the software.
  - b Unpack the ZIP file to access the executable application file.
  - c Copy the application file to a USB flash drive.
- 2 Turn on the Processor Unit.
- 3 Make the following preparations.
  - a If applicable: Connect the keyboard and the mouse to USB sockets on the Processor Unit.
  - b Insert the USB flash drive.
- 4 Install the operating software.
  - a From the Windows® **Start** button, right-click to open File Explorer.
  - b Locate the executable setup file (.exe).
  - c Copy the file to a temporary folder on the "D" drive.
  - d Double-click the setup executable file to start the installation.
  - e Select the check box to accept the license terms and conditions.
  - f Select **Install**.
  - g Follow the instructions provided by the wizard.

We recommend that you install the software in the default folder suggested by the wizard.
  - h Close File Explorer.
  - i Remove the USB flash drive.
- 5 On the Processor Unit desktop, double-click the sonar icon to start the program.
- 6 If applicable: Disconnect the keyboard and the mouse from the Processor Unit.

---

## Obtaining and installing a software license for additional functionality

The sonar system does not need any software licenses to operate. However, specific software license codes "unlocks" additional functionality.

### Context

The software license is a 32 character hexadecimal string based on the hardware identifier (**Hardware ID**). This unique identifier is generated using information from key components in the Processor Unit. The software license is linked to the physical Processor Unit. You cannot move the sonar system software from one Processor Unit to another unless you also request and install a new license.

In order to obtain a software license you must contact one of our dealers or distributors. You can also use the request form on our website, or contact our support department directly.

### Note

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*Once you receive your software license string(s), do not lose them. We suggest that you copy the information into a text file (for example Notepad), and add relevant information. Place the text file on the computer desktop, and make sure that backup copies are made.*

---

When you work in the **Installation** dialog box, you must always select **Apply** to save the changes made on a page. You must do this before you continue working on a different page.

### Procedure

- 1 On the **Setup** menu, select **Installation**.



Observe that the **Installation** dialog box opens. This dialog box contains a number of pages selected from the menu on the left side.

- 2 On the left side of the **Installation** dialog box, select **Software License**.

Observe that the **Software License** page opens.

- 3 Obtain the necessary information about your sonar system:

- Hardware ID

- 4 Send the information to one of our dealers or distributors.

You can also use the request form on our website, or contact our support department directly. You can use the following e-mail address:

- [purchase.order@simrad.com](mailto:purchase.order@simrad.com)

Once the software license string(s) have been returned to you (most likely by e-mail), you can install the licenses into the software.

- 5 Open the **Software License** page.
- 6 Select **Type License String**, and type the license string into the dialog box.  
If you do not have a computer keyboard connected to your sonar system, select the **Keyboard** button to open an on-screen keyboard. If you have received the license string on an electronic format (e-mail or text file), you can copy the string from the source document and paste it into the **Type License String** dialog box.
- 7 Select **OK** to save the license string and close the **Type License String** dialog box.
- 8 Verify that the license string is placed in the **Currently active licenses** list.  
If necessary, select the license string on the left side, and click the arrow button [ > ] to move it to the **Currently active licenses** list.
- 9 Select **Apply** and then **Close** to save all the parameters and close the **Installation** dialog box.

## Enabling "Wake-up on USB" functionality

When you connect the Mk3 Operating Panel to the HT20470 Processor Unit, you can choose to turn on the sonar system by simply touching one of the buttons or controllers on the panel. The computer BIOS (Basic Input/Output System) must be modified to support this functionality.

### Prerequisites

It is assumed that you are familiar with common BIOS (Basic Input/Output System) functionality. Neither tools nor instruments are required. We suggest that you use a computer keyboard and mouse for this task.

### Note

---

*This procedure only applies to the HT20470 Processor Unit.*

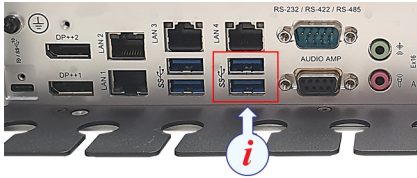
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### Context

The Processor Unit offers several USB interface sockets. The USB sockets can be used to interface peripheral devices such as USB flash drives, portable hard disks, mouse and keyboard.

Dedicated USB ports are provided for the "Wake-up on USB" functionality. "Wake-up on USB" means that you can turn on the sonar system by activating any USB device

connected to a compatible USB port. The computer BIOS (Basic Input/Output System) must be modified to support this functionality.



The relevant USB sockets are identified with a rectangle on the illustration.

#### Tip

*If you choose to enable the "Wake-up on USB" functionality, it may not be appropriate for the entire sonar system to start up when you accidentally touch the operating panel. You can prevent the sonar program from starting when the Processor Unit is turned on.*

*To start the program - and turn on the entire sonar system - you must then double-click the sonar icon on the Processor Unit desktop.*

#### Procedure

- 1 Restart the Processor Unit.
- 2 During the boot sequence, when prompted, press **DEL** to run the setup program.  
Observe that the program starts.  
Use the arrow keys on the keyboard to move the cursor.  
Press **Escape** on the keyboard to go one step "back". In some situations, **Escape** will attempt to close the BIOS setup program.
- 3 Select **Advanced** on the **Main** menu.
- 4 Select **USB Configuration**.
- 5 Set **USB S5 Wake-up support** to *Enabled*.
- 6 Press **Escape** to return to the **Main** menu.
- 7 Save the chosen parameters, and exit.
  - a Select **Save & Exit** on the **Main** menu.
  - b Select **Save Changes and Exit**.
  - c When asked if you wish to save the configuration and exit, select **Yes**.
  - d Allow the Processor Unit to restart.

## Setting up the complete sonar system

Additional tasks are required if you need to set up a complete sonar system.

### **Installation parameters**

Configure the sonar system for operational use by inserting the relevant installation parameters.

To allow the sonar system to provide correct data, you must define and insert the location of each navigation and motion sensor, as well as the location of the transducer. Do this as accurately as possible. Additional configuration of operational parameters is also required.

### **Interfaces**

Set up the interfaces with the external devices (navigation sensors and other peripherals).

To provide correct information, the sonar system needs to communicate with external devices. All these interfaces must be set up in the user interface.

Refer to the relevant descriptions and tasks in the sonar *Installation Manual*. For more information about the practical use of the sonar system, as well as detailed information about the functions and dialog boxes provided, refer to the *Reference Manual* and/or the context sensitive *On-line help*.

# Technical specifications

## Topics

[Introduction to technical specifications, page 37](#)

[HT20470 Processor Unit power requirements, page 37](#)

[HT20470 Processor Unit weight and outline dimensions, page 38](#)

[HT20470 Processor Unit environmental requirements, page 39](#)

[HT20470 Processor Unit compass safe distance, page 39](#)

## Introduction to technical specifications

These technical specifications summarize the main functional and operational characteristics of the HT20470 Processor Unit. They also provide information related to power requirements, physical properties and environmental conditions.

### Note

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*At Kongsberg Maritime, we are continuously working to improve the quality and performance of our products. The technical specifications may be changed without prior notice.*

---

## HT20470 Processor Unit power requirements

- **Manufacturer:** Hatteland Technology AS
- **Manufacturer's website:** <https://www.hattelandtechnology.com>
- **Model:** HT20470
- **Voltage requirement:**
  - 115/230 VAC (Single phase/Nominal voltage)

– 24 VDC

- **Power consumption:** 135 W (Approximately)

The HT20470 Processor Unit is available in two versions. The DC version operates on +24 VDC while the AC version operates on 100 to 240 VAC. A power supply is required if a DC powered unit needs to work from an AC supply.

The technical specifications are those valid for the computer that is provided by Kongsberg Maritime as a part of the sonar system. For additional details, refer to the technical specifications provided by the manufacturer.

Note

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*This information was copied from the manufacturer's documentation. To ensure that your information is correct, always consult the manufacturer's own documents.*

---

## HT20470 Processor Unit weight and outline dimensions

- **Manufacturer:** Hatteland Technology AS
- **Manufacturer's website:** <https://www.hattelandtechnology.com>
- **Model:** HT20470
- **Outline dimensions:**
  - **Depth:** 351.10 mm
  - **Width:** 380.14 mm
  - **Height:** 88.90 mm
- **Weight:** 7.5 kg (Approximately)

The technical specifications are those valid for the computer that is provided by Kongsberg Maritime as a part of the sonar system. For additional details, refer to the technical specifications provided by the manufacturer.

Note

---

*This information was copied from the manufacturer's documentation. To ensure that your information is correct, always consult the manufacturer's own documents.*

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## HT20470 Processor Unit environmental requirements

- **Manufacturer:** Hatteland Technology AS
- **Manufacturer's website:** <https://www.hattelandtechnology.com>
- **Model:** HT20470
- **Operating temperature:** -15°C to + 55 °C
- **Storage temperature:** -20 °C to + 70 °C
- **Relative humidity:** 10 to 95% relative non-condensing
- **Certificates:**
  - IEC 60945 (EN 60945:2002)
  - IACS E10
  - EN61162
  - CSS (China Classification Society)
- **Ingress protection (IP) code:** The manufacturer has not provided this information.

The technical specifications are those valid for the computer that is provided by Kongsberg Maritime as a part of the sonar system. For additional details, refer to the technical specifications provided by the manufacturer.

### Note

---

*This information was copied from the manufacturer's documentation. To ensure that your information is correct, always consult the manufacturer's own documents.*

---

## HT20470 Processor Unit compass safe distance

- **Manufacturer:** Hatteland Technology AS
- **Manufacturer's website:** <https://www.hattelandtechnology.com>
- **Model:** sonar Processor Unit (HT20470)
- **Standard compass:** 150 cm
- **Steering compass:** 130 cm

The technical specifications are those valid for the computer that is provided by Kongsberg Maritime as a part of the sonar system. For additional details, refer to the technical specifications provided by the manufacturer.

Note

---

*This information was copied from the manufacturer's documentation. To ensure that your information is correct, always consult the manufacturer's own documents.*

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# Drawing file

## Topics

[About the drawings in the drawing file, page 42](#)

[494024 Processor Unit outline dimensions \(HT20470/DC\), page 43](#)

[494025 Processor Unit outline dimensions \(HT20470/AC\), page 46](#)

[Power supply dimensions, page 49](#)

## About the drawings in the drawing file

Relevant drawings related to installation and/or maintenance are provided for information purposes only.

### Note

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*These drawings are provided only for information and planning purposes. Information may be omitted. Observe the source drawings for additional details.*

---

The drawings are not to scale. Unless otherwise specified, all measurements are in millimetres. The original installation drawings are available in PDF and/or AutoCad's DWG format. The original drawing can be downloaded from our website.

- <https://www.kongsberg.com/fisherysonar>

Some drawings and documents are not available from our website. These can be downloaded from the *Simrad Dealer Club*.

- [www.kongsberg.com/sdc](http://www.kongsberg.com/sdc)

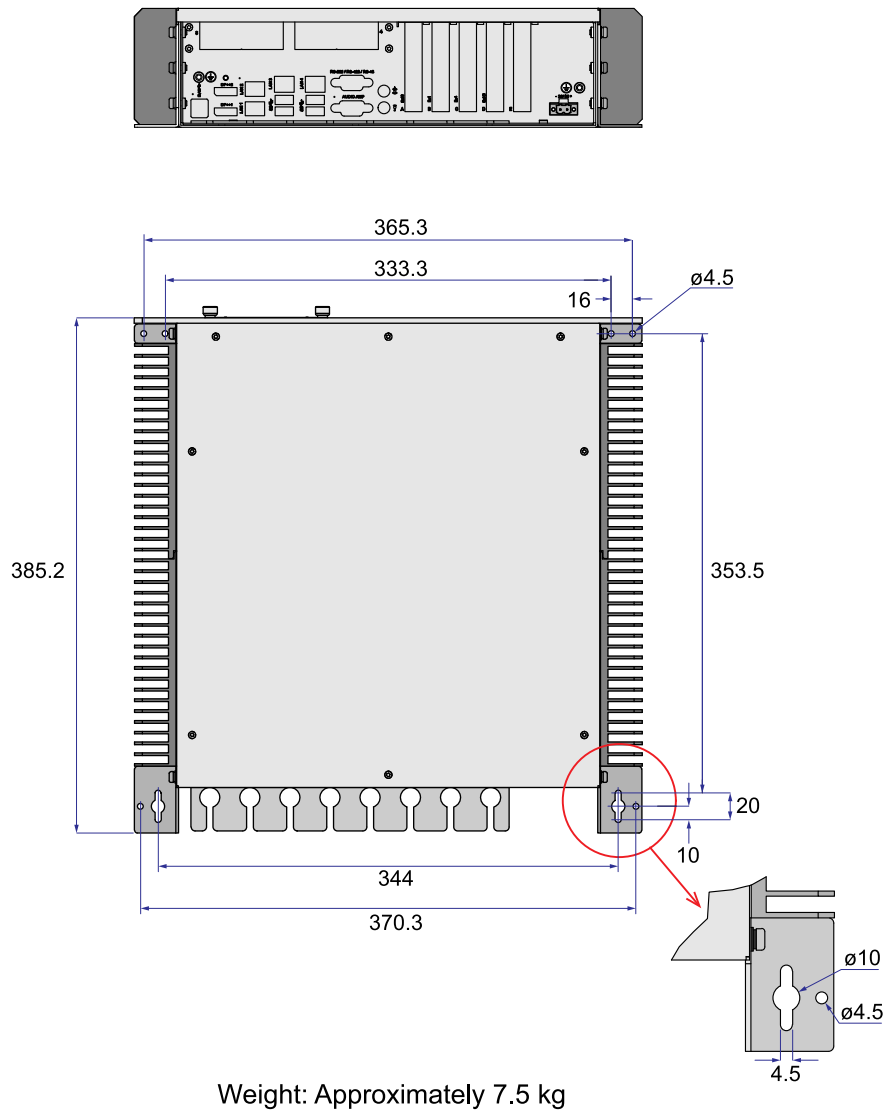
The installation shipyard must provide all necessary design and installation drawings, as well as the relevant work standards and mounting procedures.

If required, all documents provided by the shipyard for the physical installation of the sonar system must be approved by the vessel's national registry and corresponding maritime authority and/or classification society. Such approval must be obtained before the installation can begin. The shipowner and shipyard doing the installation are responsible for obtaining and paying for such approval.

# 494024 Processor Unit outline dimensions (HT20470/DC)

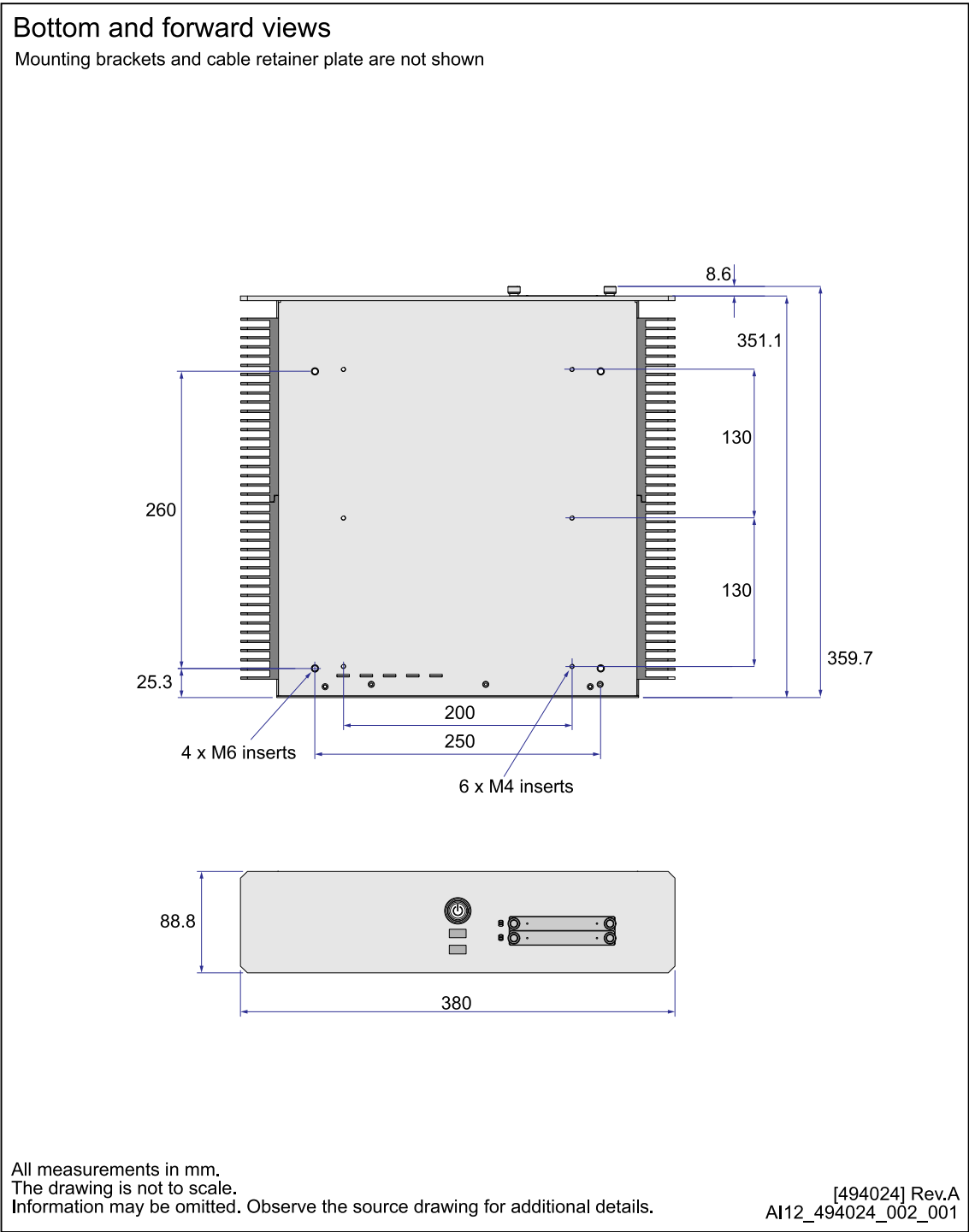
Download the source drawing from our website: [kongsberg.com/fisherysonar](http://kongsberg.com/fisherysonar)

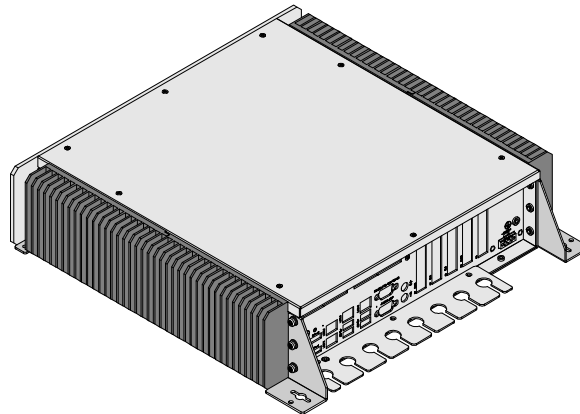
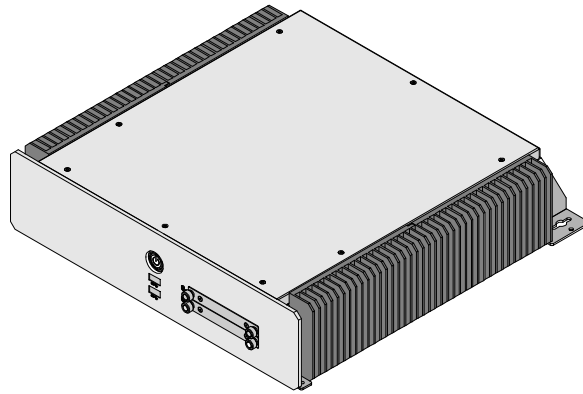
Top and rear views



All measurements in mm.  
 The drawing is not to scale.  
 Information may be omitted. Observe the source drawing for additional details.

[494024] Rev.A  
 AI12\_494024\_001\_001





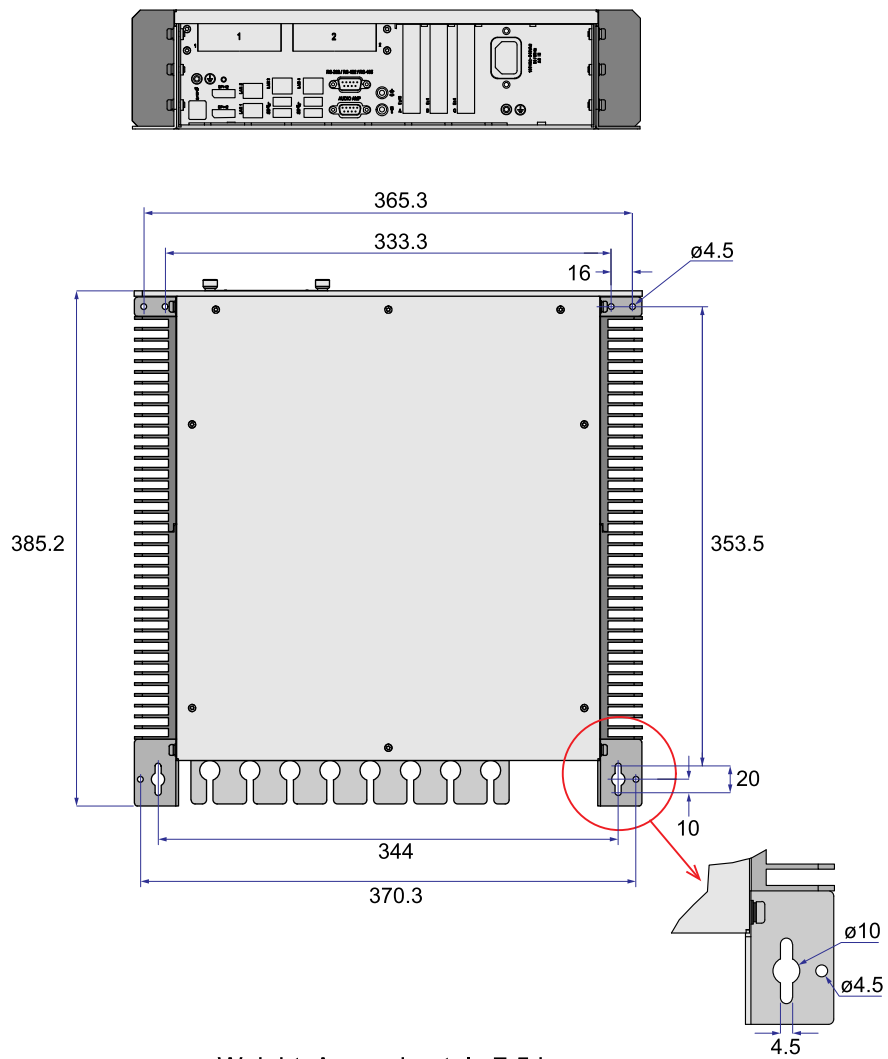
All measurements in mm.  
The drawing is not to scale.  
Information may be omitted. Observe the source drawing for additional details.

[494024] Rev.A  
AI12\_494024\_003\_001

# 494025 Processor Unit outline dimensions (HT20470/AC)

Download the source drawing from our website: [kongsberg.com/fisherysonar](http://kongsberg.com/fisherysonar)

## Top and rear views



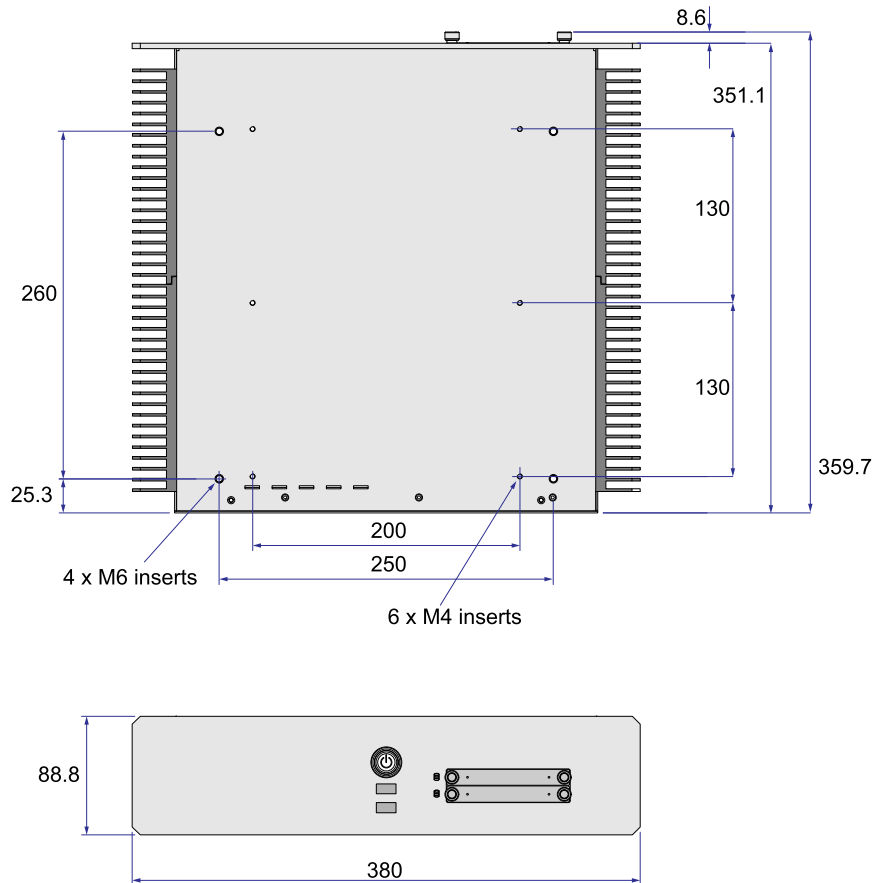
All measurements in mm.  
The drawing is not to scale.  
Information may be omitted. Observe the source drawing for additional details.

[494025] Rev.A  
AI12\_494025\_001\_001



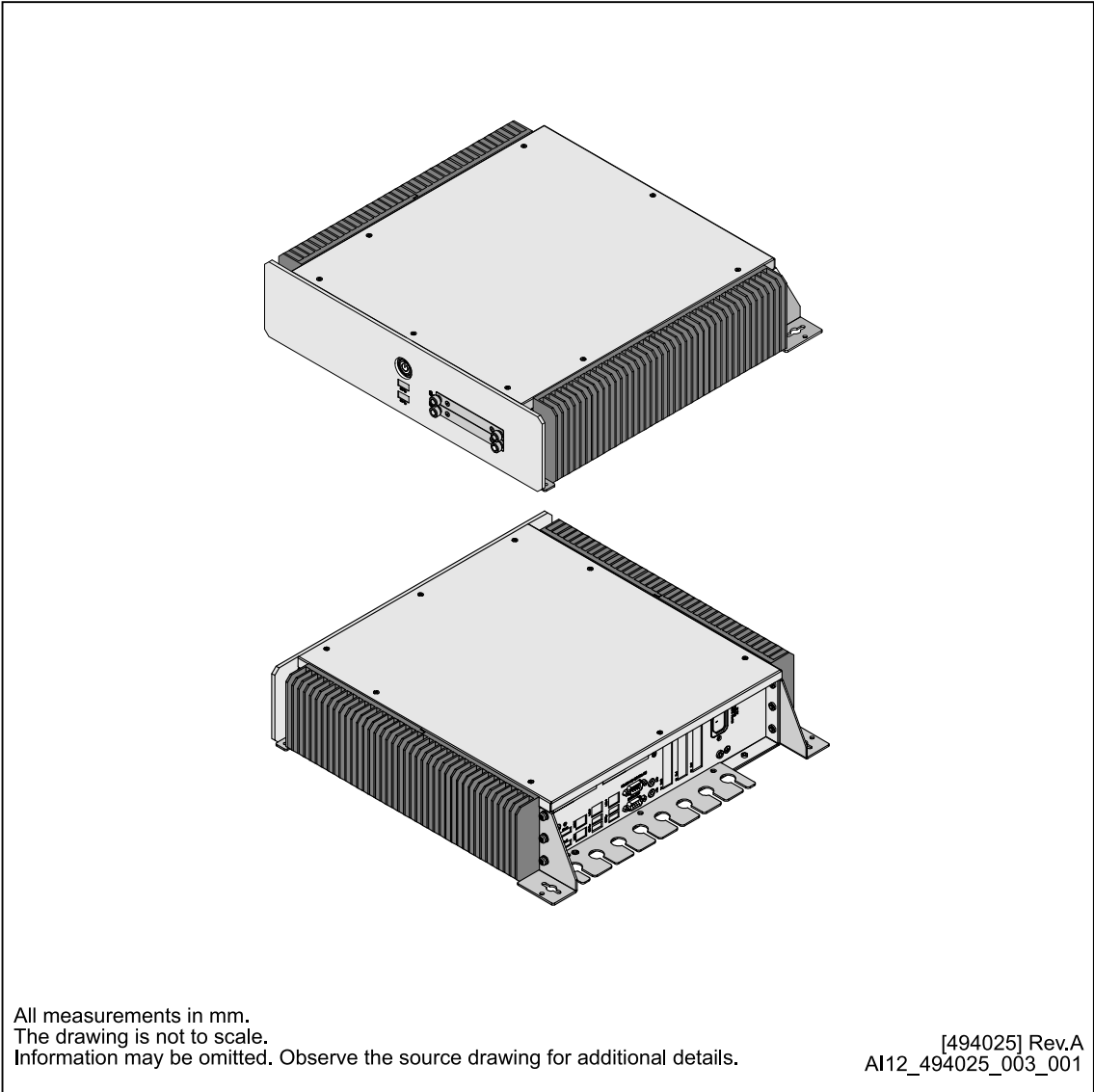
### Bottom and forward views

Mounting brackets and cable retainer plate are not shown



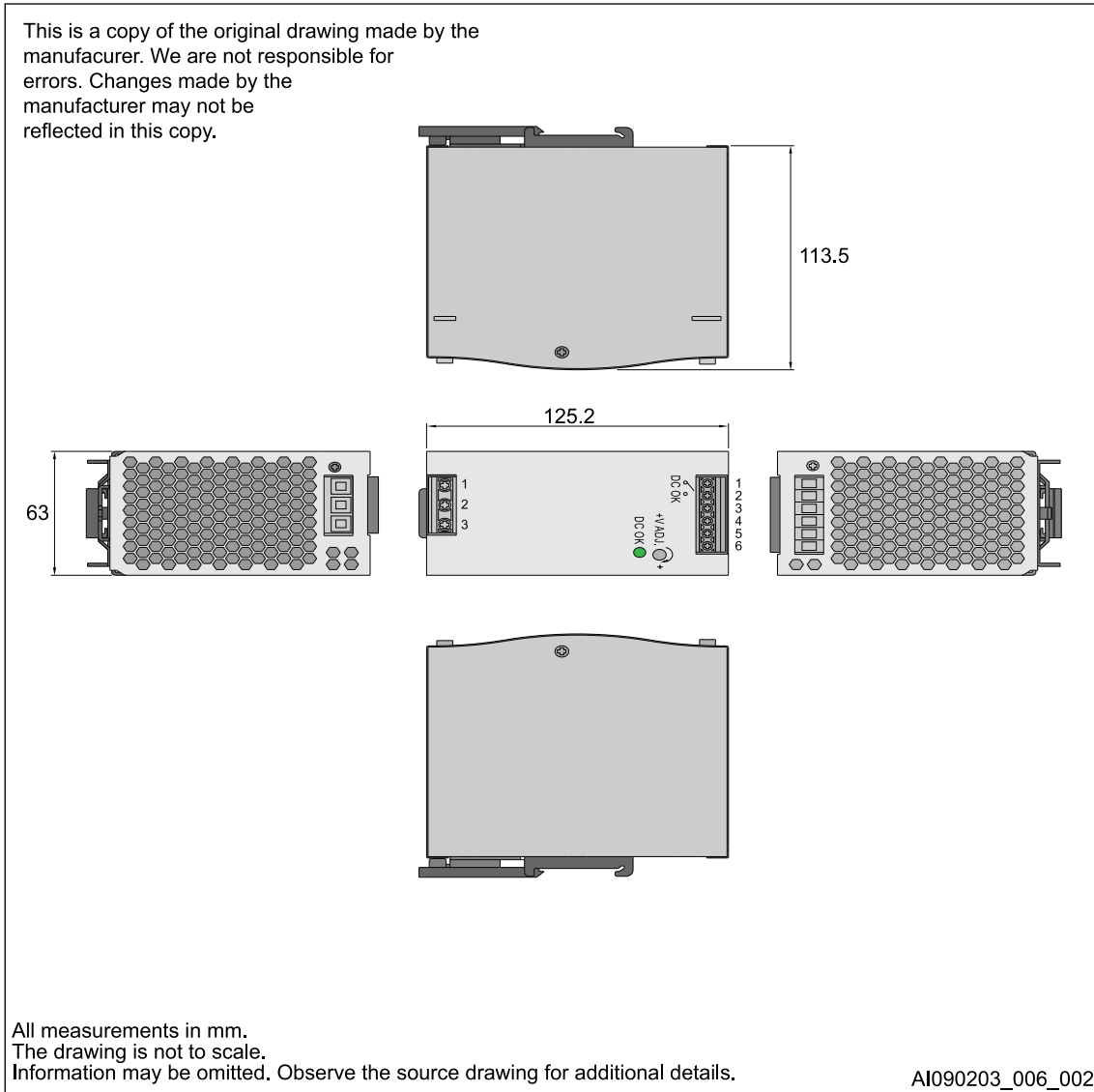
All measurements in mm.  
 The drawing is not to scale.  
 Information may be omitted. Observe the source drawing for additional details.

[494025] Rev.A  
 AI12\_494025\_002\_001



## Power supply dimensions

For additional details, refer to the technical specifications provided by the manufacturer.



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