



KONGSBERG

***Hydrographic Work Station
Multibeam Echo Sounder
Instruction Manual***

495770/A

May 2022 © Kongsberg Maritime AS

Document information

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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.

Kongsberg Maritime disclaims any responsibility for damage or injury caused by improper installation, use or maintenance of the equipment.

Disclaimer

Kongsberg Maritime AS endeavours to ensure that all information in this document is correct and fairly stated, but does not accept liability for any errors or omissions.

Support information

If you require maintenance or repair, contact Kongsberg Maritime's support organisation. You can also contact us using the following address: km.hydrographic.support@kongsberg.com. If you need information about our other products, visit <https://www.kongsberg.com/maritime>.

KM Support is also available in the KM-App.

The KM-Support App is available for free in the App Store and Google Play. The use of the KM-Support App is free of charge. The user's mobile phone provider may charge the costs of the phone call communication to the caller.

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About this manual

This manual includes documentation to install and maintain the Hydrographic Work Station. For documentation to install and maintain the multibeam echo sounder system, see the manuals for the selected EM[®] system.

Target audience

This manual is intended for all users of the system.

Online information

For information about the Hydrographic Work Station and other products from Kongsberg Maritime, visit our website.

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

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Hydrographic Work Station

Topics

[Hydrographic Work Station description, page 7](#)

[HWS - MC330, page 7](#)

[HWS - MP5810, page 7](#)

[Portable HWS - Dell Latitude 5424, page 8](#)

Hydrographic Work Station description

The Hydrographic Work Station is the operator station of the EM multibeam system.

A dedicated maritime computer is provided. It is set up with all necessary software.

The Hydrographic Work Station is normally mounted near the operator work space.

The Hydrographic Work Station is based on a commercial design. Due to the constant development of new computer parts, older parts are no longer manufactured. This means that the computer type used with the Hydrographic Work Station system changes from time to time.

The Hydrographic Work Station is available in a semi rugged or fully rugged version for portable use.

HWS - MC330

MC330 is the name of a Lenovo computer assembled by Kongsberg for use as an operator station for several products.

The computer is based on a compact modular layout. The individual components are easy to access for assembly and maintenance as they are firmly attached to a solid frame. The frame is mounted on a sliding drawer providing easy access when mounted in a rack.



HWS - MP5810

MP5810 is the name of a HP computer used as an operator station for several Kongsberg products.

The computer is based on a commercial design and the software and hardware has been specified and assembled by Kongsberg to suit the different requirements.

The computer is a desktop model, and installation kits are available for rack mounting and horizontal mounting.

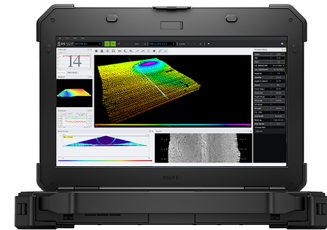
This product is discontinued and is no longer sold.



Portable HWS - Dell Latitude 5424

Latitude 5424 is the name of a Dell notebook computer used as an operator station.

The computer is available in a semi rugged or fully rugged version.



Cable layout and interconnections

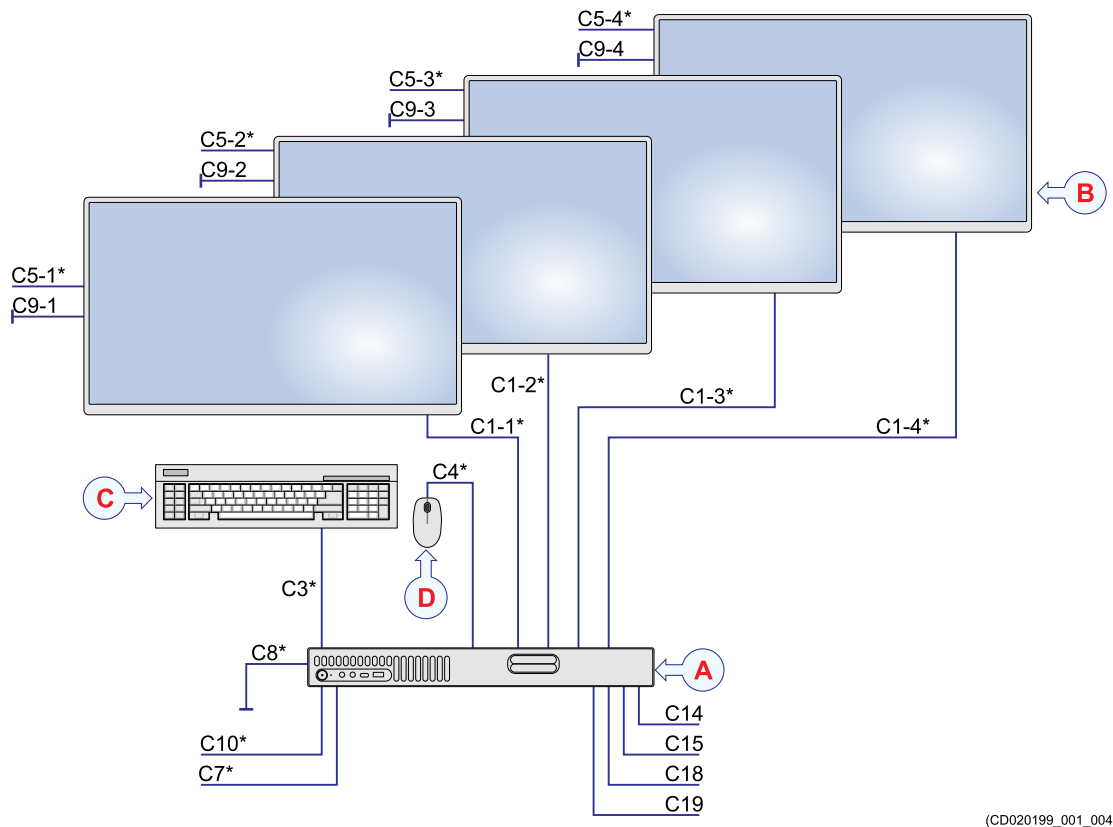
Topics

[Cable plan - Hydrographic Work Station, page 10](#)

[List of cables, page 11](#)

Cable plan - Hydrographic Work Station

The topside/bridge cables include those used to connect the computer and the display to each other, to AC mains power, and to external devices.



(CD020199_001_004)

A Hydrographic Work Station (HWS)

B Display

The Hydrographic Work Station supports three or four displays. The number of displays depend on the computer model used.

C Computer keyboard

D Computer mouse or trackball

Cables identified with an asterisk (*) are system or commercial cables. These cables are supplied with the Hydrographic Work Station delivery.

Related topics

[List of cables, page 11](#)

List of cables

A set of cables is required to connect the system units to each other, and to the relevant power source(s).

Cable	Signal	From/To	Minimum requirements
C1	Video cable	From Hydrographic Work Station to display	
	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.		
C3	Computer cable	From Hydrographic Work Station to keyboard	
C4	Computer cable	From Hydrographic Work Station to mouse (or another similar device)	
C5	AC Power cable	From display to uninterruptible power supply (UPS)	2 x 1.5 mm ² + 1.5 mm ² Ground
C7	AC Power cable	From Hydrographic Work Station to uninterruptible power supply (UPS)	2 x 1.5 mm ² + 1.5 mm ² Ground
C8	Ground cable	From Hydrographic Work Station to vessel ground	1 x 6 mm ²
C9	Ground cable	From display to vessel ground	1 x 6 mm ²
C10	Ethernet cable	From Processing Unit to Hydrographic Work Station	CAT5-E STP (Shielded Twisted Pair)
	A 4.5 meter long Ethernet cable is provided with the Processing Unit. If a longer cable is required, this must be provided by the installation shipyard.		
C14	Serial cable	From computer to external device(s)	
C15	Serial cable	From computer to external device(s)	
C18	Ethernet cable	From Hydrographic Work Station to local area network (LAN)	CAT5-E STP (Shielded Twisted Pair)
C19	Ethernet cable	From Hydrographic Work Station to local area network (LAN)	CAT5-E STP (Shielded Twisted Pair)

Note

It is very important that high-quality Ethernet cables are used. You must use CAT-5E STP (Shielded Twisted Pair) quality or better. Using cables with lower bandwidth capacity will reduce performance.

Related topics

[Cable plan - Hydrographic Work Station, page 10](#)

HWS - MC330

Topics

[Installing the HWS - MC330 , page 13](#)

[HWS front panel description - MC330, page 16](#)

[HWS connections - MC330, page 17](#)

Installing the HWS - MC330

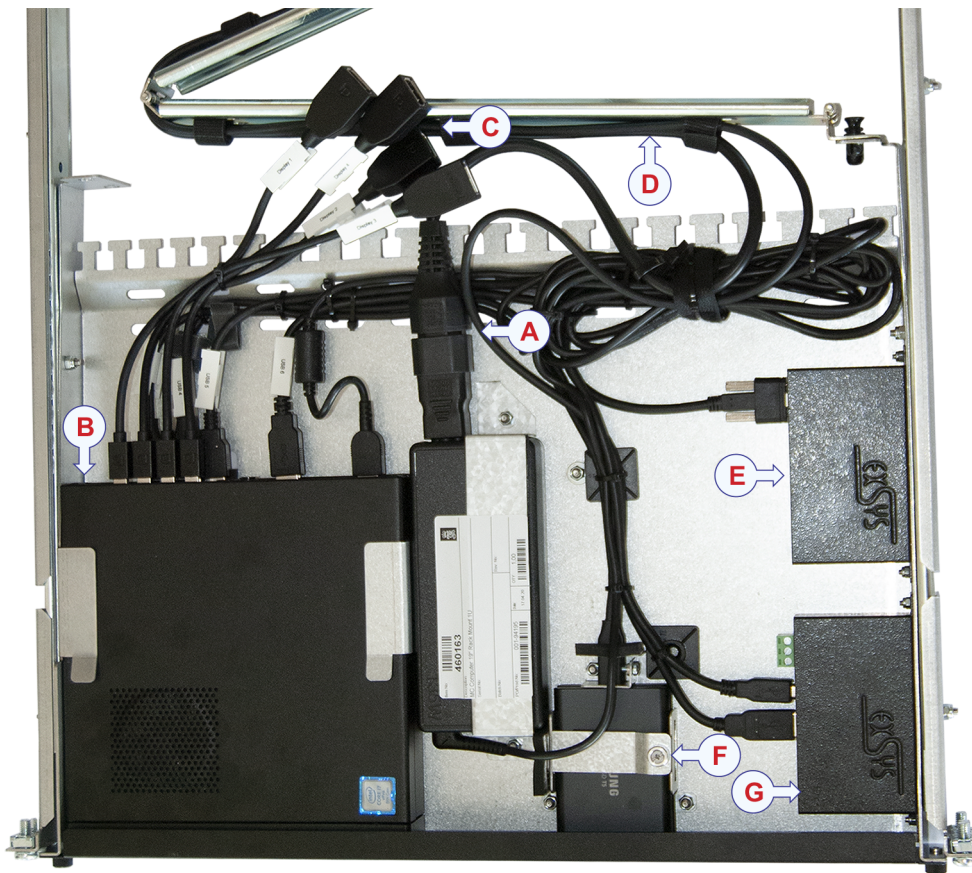
Follow this procedure to install the rack model of the computer.

Context

A suitable location for the computer must be defined prior to installation.

Note

Observe the compass safe distance.



- A *Power cable*
There is a converter which makes it possible to use the same cable as in previous versions of the HWS.
- B *Network cable from the Processing Unit*
- C *Display cables*
- D *Moving arm*
- E *Ethernet switch for network connection*
- F *Screw that holds removable SSDs*
Remove the front cover and open the drawer, then gently remove the SSD.
- G *USB hub*
Mouse, keyboard and USB license dongle are connected here.

The power-button is in the front, and one USB-C and one USB-B are also in the front. If a wireless mouse is used, it may be better to insert the radio transmitter in the front than inside the cabinet.

Note that the minimum length of the rack is 520 mm. If the rack is deeper, the sliding drawer can be extended to fit the rack mount.

Also note that there must be three holes with the same small distance in the front of the rack for correct installation.

Procedure

- 1 Adjust the rails to fit the rack.
- 2 Put the nuts in the right places in the rack.
- 3 Connect all cables to the HWS.

Remember to mark all cables, so you know where to connect the other end. Labels are provided with the HWS.

Note

The network cable from the Processing Unit must be connected directly at the main PC. (B)

- 4 Attach all the cables to the moving arm using cable ties.
- 5 Insert the HWS into the rack.
- 6 Connect the loose end of the cables to their respective units.

Related topics

[464618 HWS dimensions - MC330 - Rack model, page 33](#)

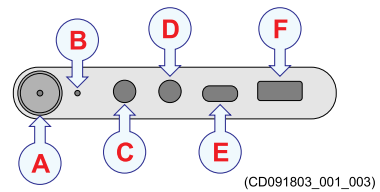
HWS front panel description - MC330

Description of HWS, type MC330

The front panel of the Hydrographic Work Station holds a mains power switch, LED indicators, USB sockets and hard disk drives.



- A** *Power On/Off*
A LED indicator is integrated in the on/off button.
- B** *Hard disk indicator*
- C** *Audio input (Microphone port)*
- D** *Audio input/output (Microphone/headphone port)*
- E** *USB-C port*
- F** *USB-A port*

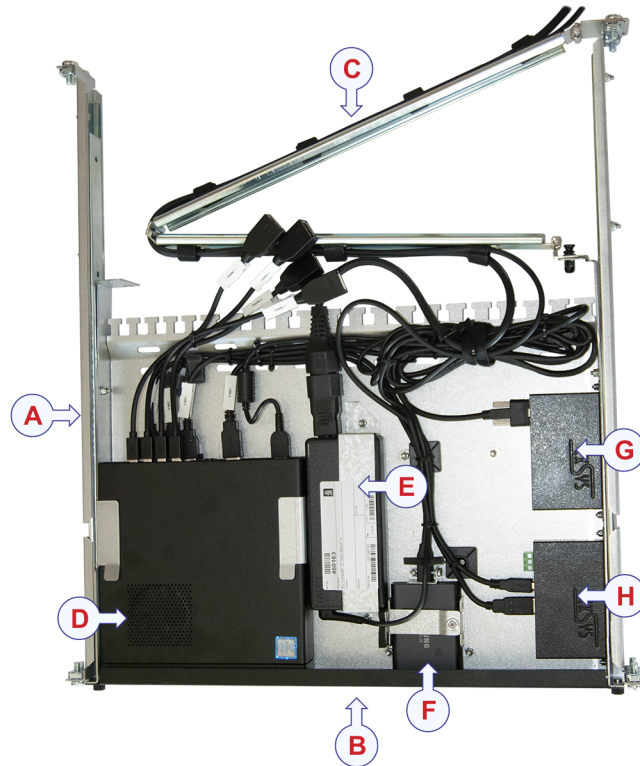


HWS connections - MC330

The rack model is mounted in a sliding drawer, and the cables are connected inside the drawer.

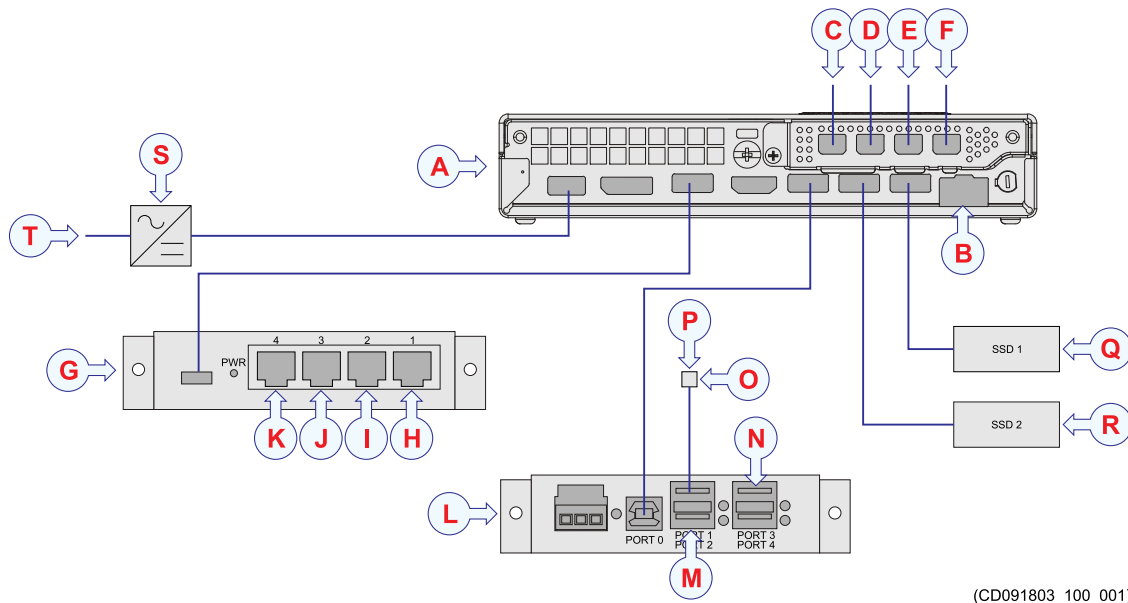
HWS - MC330 - Rack model

- A *Rack mount drawer*
- B *Front*
- C *Moving arm*
- D *MC330 computer*
- E *Power supply*
- F *Solid-state drives (SSD)*
- G *Ethernet switch for network connection*
- H *USB hub*
Mouse, keyboard and USB license dongle are connected here.



Top view

Connections



(CD091803_100_001)

- A** MC330 computer
- B** Ethernet - Net A
Network cable from the Processing Unit (C10)
- C** Display
- D** Display
- E** Display
- F** Display
- G** Ethernet switch for network connection
- H** Ethernet - Net B
- I** Ethernet - Net C
- J** Ethernet - Net D
- K** Ethernet - Net E
- L** USB hub
- M** Computer keyboard
- N** Computer mouse
- O** USB to serial line unit
- P** Serial line
- Q** Solid-state drive (SSD)
- R** Solid-state drive (SSD)
- S** Power Supply Unit
- T** Power supply

HWS - MP5810

Topics

[Installing the HWS - MP5810, page 20](#)

[HWS front panel description - MP5810, page 23](#)

[HWS connections - MP5810 \(SIS4\), page 24](#)

[HWS connections - MP5810 \(SIS5\), page 26](#)

Installing the HWS - MP5810

The computer can be installed inside a console, inside a suitable cabinet, in a 19" rack or on a desk. Make sure that ample ventilation is provided 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 computer must be defined prior to installation.

Note

Observe the compass safe distance.

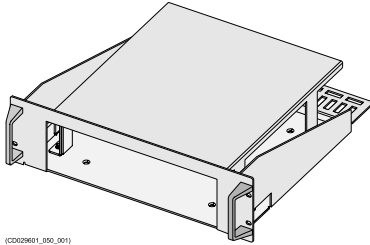
Context

The Hydrographic Work Station can be installed in several different ways using various installation kits.

- Stand-alone desktop mounting (No installation kit)

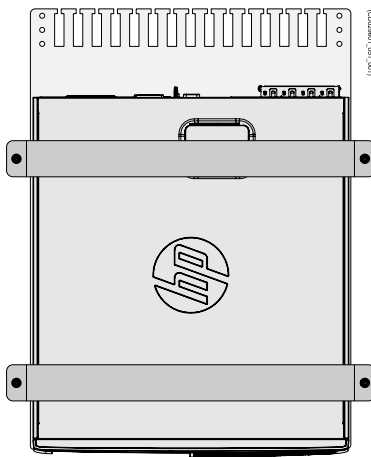
- 19" rack mounting kit - Part number 371931

Drawing 445723



- Horizontal or vertical mounting kit - Part number 331385

Drawing 365290



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 If you are mounting the computer using the 19" rack kit:
 - a Remove the lid on the rack shelf.
 - b Place the computer on the shelf.
 - c Mount the lid, and secure it properly.
 - d Place the shelf into the 19" rack.

All necessary nuts and bolts are provided with the mounting kit.

- 6 If you are mounting the computer using the horizontal/vertical kit:
 - a Prepare four holes – each M6 – for the bottom plate.
 - b Mount the bottom plate using M6x20 bolts, washers and nuts.
 - c Place the computer on the bottom plate.
 - d Mount the two brackets to the bottom plate using M5 locking nuts and washers.
- 7 If you are mounting the computer as a stand-alone desktop unit:
 - a Place the computer on the surface.
 - b Secure the computer using any means available.
- 8 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.

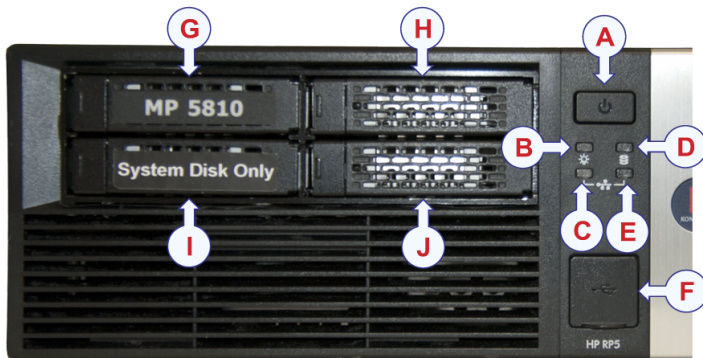
Related topics

- [378828 HWS dimensions - MP5810, page 34](#)
- [445723 Rack installation kit dimensions, page 35](#)
- [365290 KM 1000 mounting kit dimensions, page 36](#)

HWS front panel description - MP5810

Description of HWS, type MP5810

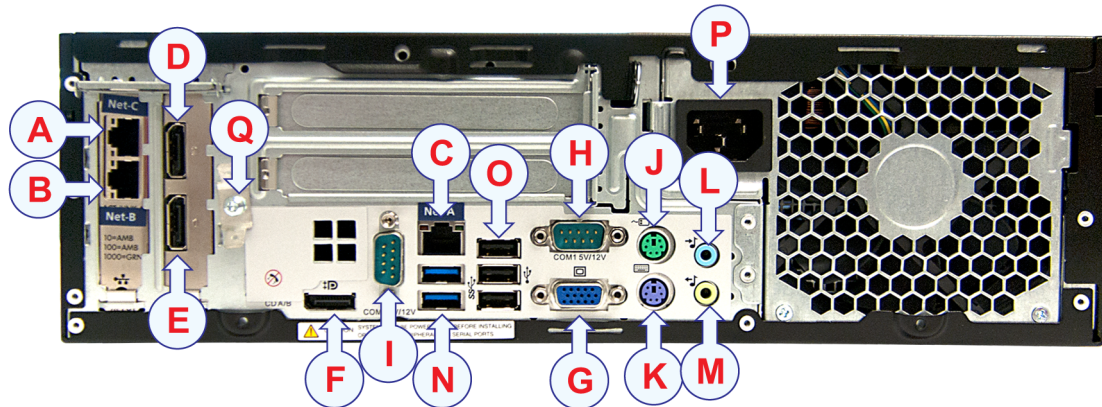
The front panel of the Hydrographic Work Station holds a mains power switch, LED indicators, USB sockets and hard disk drives.



- A *Power On/Off*
- B *Power connection indicator*
- C *Network connection indicator*
- D *Hard disk indicator*
- E *Network activity indicator*
- F *Two USB 2.0 connectors behind lid*
- G *Hard disk drive*
- H *Hard disk drive*
- I *Hard disk drive. System disk*
- J *Not used*

HWS connections - MP5810 (SIS4)

The rear panel of the Hydrographic Work Station holds connectors for the various Hydrographic Work Station cables.



The image shows the MP5810 Fishery SIS4 model. Part number: 419322

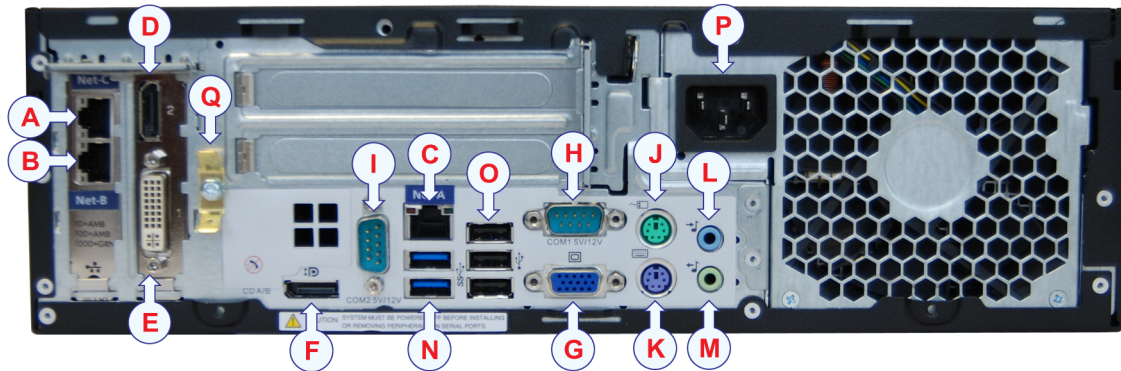
If another model is used, the connections can be different.

- A** Ethernet cable: From Processing Unit to Hydrographic Work Station (C11)
- B** Ethernet cable: From Hydrographic Work Station to local area network (LAN)
Not used
- C** Ethernet cable: From Processing Unit to Hydrographic Work Station (C10)
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 a cable with lower bandwidth capacity will reduce performance.
- D** DisplayPort
Display cable: From computer to display (C1)
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.
- E** DisplayPort
- F** DisplayPort
- G** Video port: VGA
- H** Serial cables: From computer to external device(s) (C14)
- I** Serial cables: From computer to external device(s) (C15)
- J** Computer cable: From Hydrographic Work Station to mouse (or another similar device) (C4)
The cable is often physically attached to the mouse, and terminated in the “computer end” with a male PS/2 or USB connector. Depending on the type of connector you must connect the mouse to the PS/2 connector or an USB connector on the computer.

- K** *Computer cable: From Hydrographic Work Station to keyboard (C3)*
The cable is often physically attached to the keyboard, and terminated in the “computer end” with a male PS/2 or USB connector. Depending on the type of connector you must connect the keyboard to the PS/2 connector or an USB connector on the computer.
- L** *Audio cable: Not used*
- M** *Audio cable: Not used*
- N** *USB (Universal Serial Bus) sockets: USB 3.0 From computer to external device(s)*
- O** *USB (Universal Serial Bus) sockets: USB 2.0 From computer to external device(s)*
- P** *AC Power cable: From Hydrographic Work Station to uninterruptible power supply (UPS) (C7)*
- Q** *Ground cable: From Hydrographic Work Station to vessel ground (C8)*

HWS connections - MP5810 (SIS5)

The cables are connected on the rear panel on the computer.



The image shows the MP5810 Fishery SIS5 model. Part number: 438847

If another model is used, the connections can be different.

A Ethernet cable: From Hydrographic Work Station to local area network (LAN) (C18)

B Ethernet cable: From Hydrographic Work Station to local area network (LAN) (C19)

C Ethernet cable: From Processing Unit to Hydrographic Work Station (C10)

It is very important that high-quality Ethernet cables are used. You must use CAT-5E STP (Shielded Twisted Pair) quality or better. Using cables with lower bandwidth capacity will reduce performance.

D DisplayPort

Display cable: From Hydrographic Work Station to display (C1)

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.

E Video port: DVI

F DisplayPort

G Video port: VGA

H Serial cables: From Hydrographic Work Station to external device(s) (C14)

I Serial cables: From Hydrographic Work Station to external device(s) (C15)

J Computer cable: From Hydrographic Work Station to mouse (or another similar device) (C4)

The cable is often physically attached to the mouse, and terminated in the “computer end” with a male PS/2 or USB connector. Depending on the type of connector you must connect the mouse to the PS/2 connector or an USB connector on the computer.

- K** *Computer cable: From Hydrographic Work Station to keyboard (C3)*
The cable is often physically attached to the keyboard, and terminated in the “computer end” with a male PS/2 or USB connector. Depending on the type of connector you must connect the keyboard to the PS/2 connector or an USB connector on the computer.
- L** *Audio cable: Not used*
- M** *Audio cable: Not used*
- N** *USB (Universal Serial Bus) sockets: USB 3.0 From Hydrographic Work Station to external device(s)*
- O** *USB (Universal Serial Bus) sockets: USB 2.0 From Hydrographic Work Station to external device(s)*
- P** *AC Power cable: From Hydrographic Work Station to uninterruptible power supply (UPS) (C7)*
- Q** *Ground cable: From Hydrographic Work Station to vessel ground (C8)*

Technical specifications

Topics

[Weights and outline dimensions, page 29](#)

[Power requirements, page 30](#)

[Environmental requirements, page 31](#)

Weights and outline dimensions

These weights and outline dimension characteristics summarize the physical properties of the Hydrographic Work Station system.

Hydrographic Work Station - MC330

- **Make and model:** MC330
- **Outline dimensions:**
 - **Depth:** 520 – 742 mm
 - **Width:** 483 mm
 - **Height:** 44.45 mm (1U)
- **Weight:** approximately 6.6 kg

Hydrographic Work Station - MP5810

- **Make and model:** HP MP5810
- **Outline dimensions:**
 - **Depth:** 379 mm
 - **Width:** 338 mm
 - **Height:** 100 mm
- **Weight:** 7 kg (Approximately)

Portable Hydrographic Work Station

- **Make and model:** Dell Latitude 5424 Rugged
- **Outline dimensions (Excludes bumpers and handle):**
 - **Depth:** 347.0 mm
 - **Width:** 244.5 mm
 - **Height:** 44.4 mm
- **Weight:** Starting at 2.5 kg

For more detailed information about the physical dimensions, see the *Drawing file*.

Related topics

[Drawing file, page 32](#)

Power requirements

These power characteristics summarize the supply power requirements for the Hydrographic Work Station system.

Hydrographic Work Station - MC330

- **Make and model:** MC330
- **Voltage requirement:** 115/230 VAC
- **Power consumption:** Max 135 W, 65 W typical

More technical information is stated in the data sheet for the Hydrographic Work Station.

Visit our website for this information: <https://www.kongsberg.com/maritime/>

Note _____

The use of an Uninterruptible Power Supply (UPS) is highly recommended for the Hydrographic Work Station.

Hydrographic Work Station - MP5810

- **Make and model:** HP MP5810
- **Voltage requirement:** 100/240 VAC, 50 to 60 Hz, autosensing
- **Maximum power consumption:** 240 W (Approximately)

Note _____

The use of an Uninterruptible Power Supply (UPS) is highly recommended for the Hydrographic Work Station.

Portable Hydrographic Work Station

- **Make and model:** Dell Latitude 5424 Rugged
- **Voltage requirement:** 100/240 VAC or 19.5 VDC
- **Maximum power consumption:** 90 W

Environmental requirements

These specifications summarize the temperature requirements and other environmental standards for the Hydrographic Work Station system.

Hydrographic Work Station - MC330

- **Make and model:** MC330
- **Operating temperature:** 0 to +50 °C
- **Storage temperature:** -20 to +70 °C
- **Relative humidity:** 5 to 95% Non-condensing
- **Certificates:**
 - IEC 60945
 - IACS E10

More technical information is stated in the data sheet for the Hydrographic Work Station. Visit our website for this information: <https://www.kongsberg.com/maritime/>

Hydrographic Work Station - MP5810

- **Make and model:** HP MP5810
- **Operating temperature:** 0 to +50 °C
- **Storage temperature:** -20 to +70 °C
- **Relative humidity:** 5 to 95% Non-condensing
- **Ingress protection (IP) code:** IP22
This IP rating is only applicable when the unit is mounted using the optional kit for 19-inch rack.
- **Certificates:**
 - IEC 60945
 - IACS E10

Portable Hydrographic Work Station

- **Make and model:** Dell Latitude 5424 Rugged
- **Operating temperature:** -29 to +60 °C
- **Storage temperature:** -51 to +71 °C
- **Relative humidity:** 10 to 80 % Non-condensing
- **Ingress protection (IP) code:** IP52
Dust-protected, protected against dripping water when tilted up to 15 degrees

Drawing file

Topics

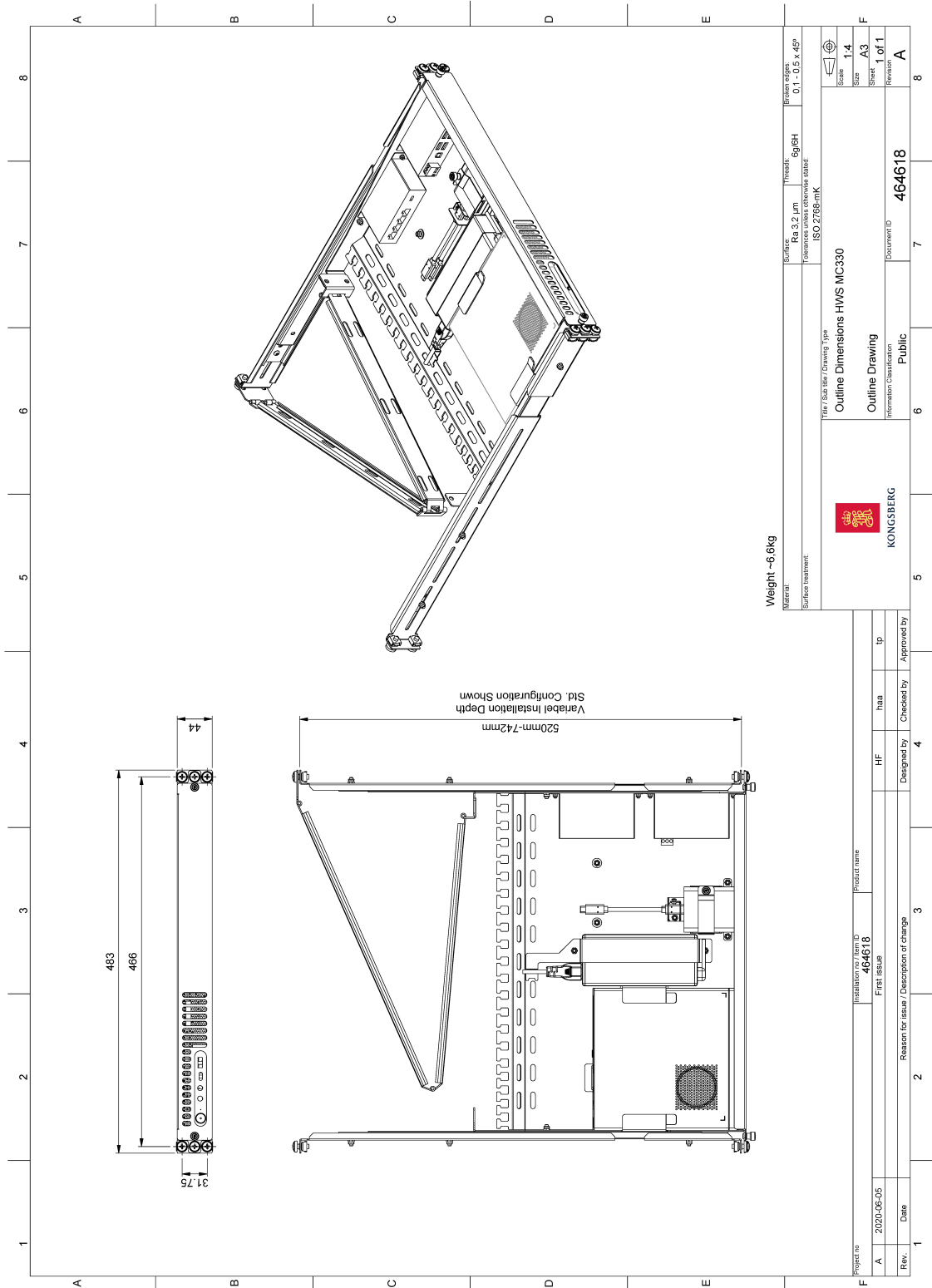
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464618 HWS dimensions - MC330 - Rack model



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378828 HWS dimensions - MP5810

337
102.5

60
384

Isometric View

Required Inst. space

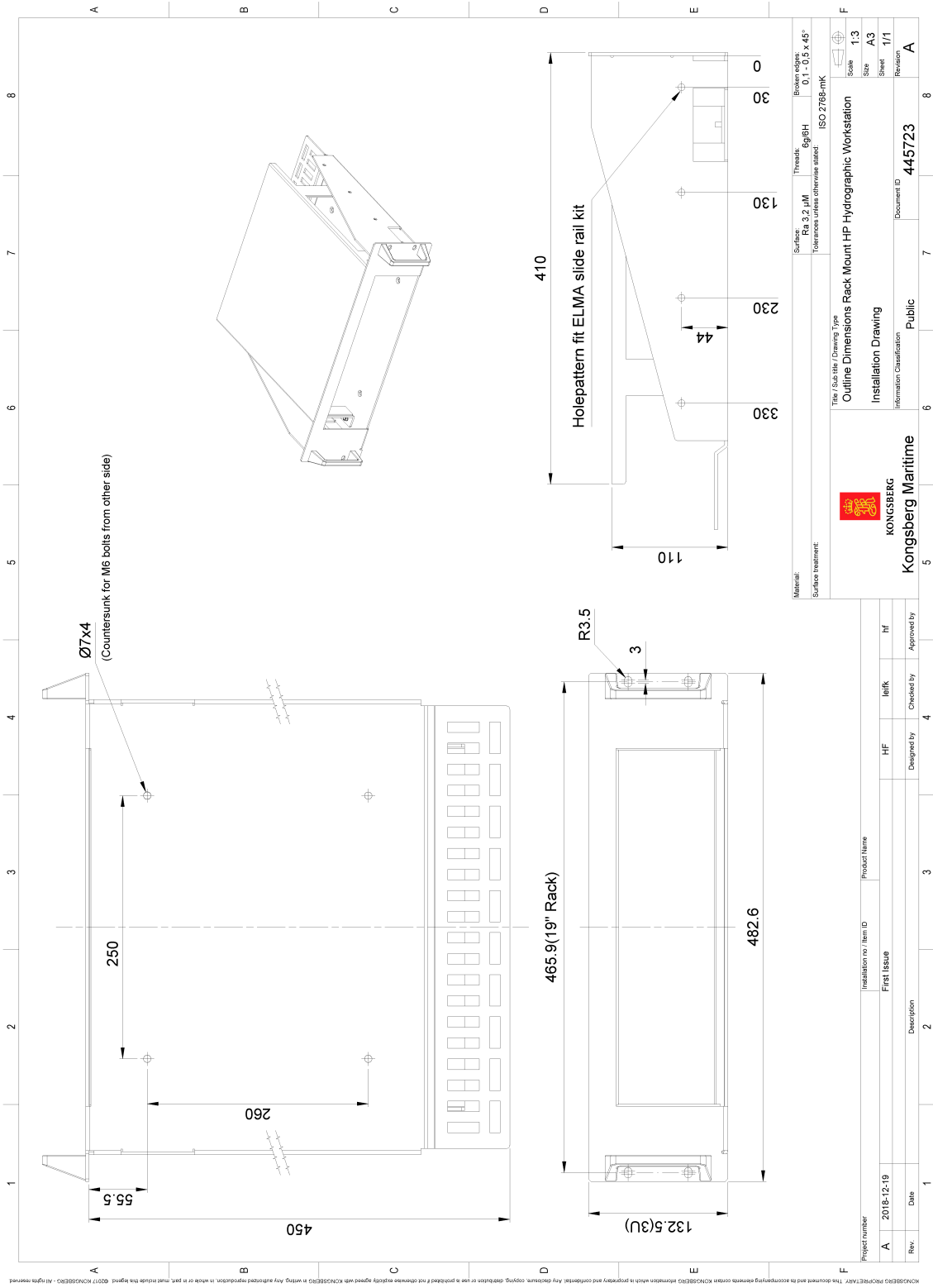
Weight approx. 8Kg

Reference documentation:
 366001 Outline Desk Mounting;
 371591 Outline Rack Unit;
 375288 Rail Kit Rack Unit;
 372140 Instruction Manual Rack Unit;
 365290 Outline KM1000 Mounting Kit;
 327993 Outline Mariner Mounting Kit;

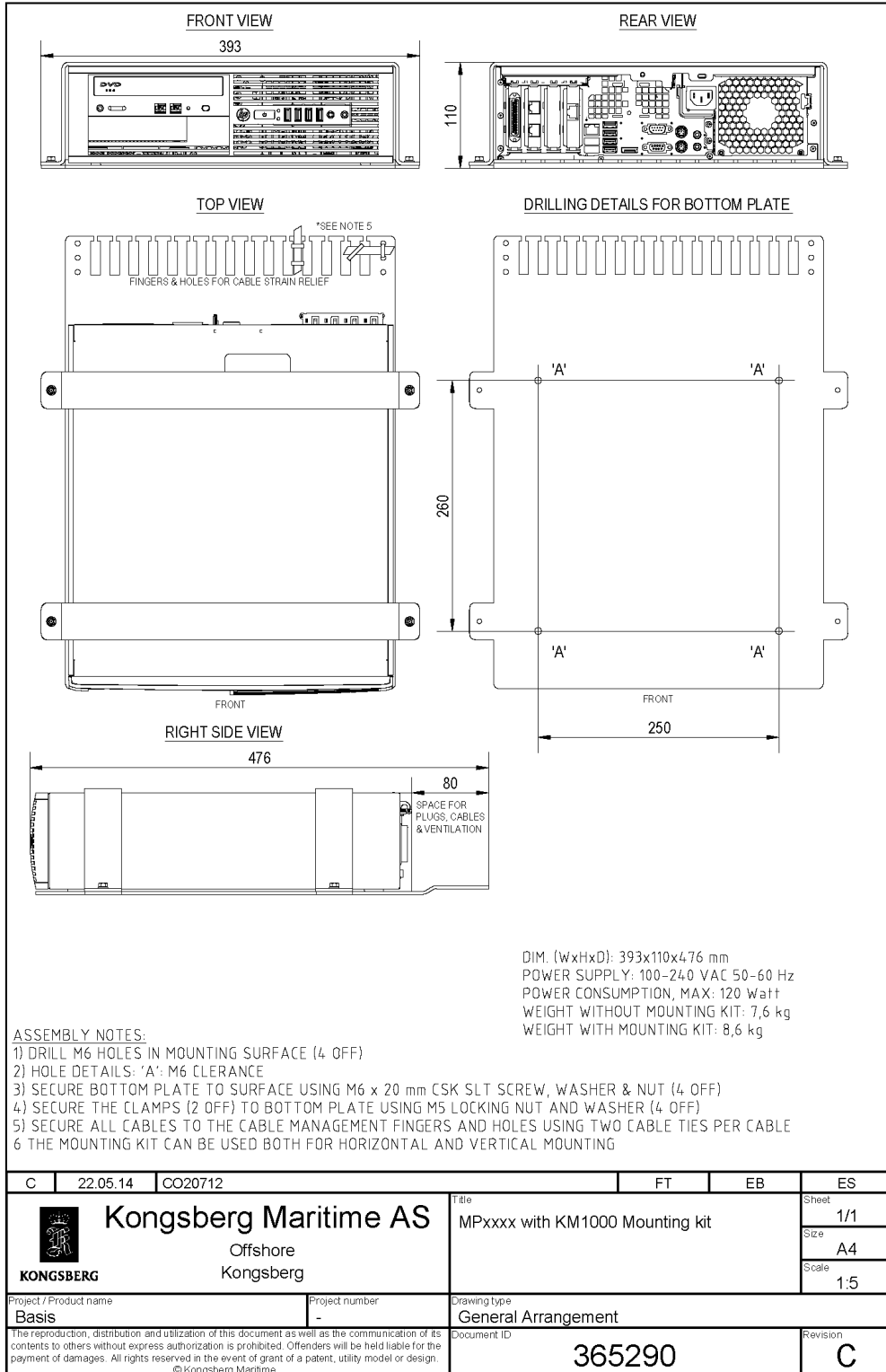
REV.	DATE	FILE ISSUE	DESCRIPTION	DESIGNED BY	CHKD BY	TP
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Subclass Treatment: —			Dim: ISO 2788-mtk, Treats: By/ØH Subclass: Rø8.3			
Project/Product name: —			Kongsberg Maritime AS			
EMx			Subclass Division: MP8200H			
Project/Product name: —			Horten - Norway			
EMx			Project number: —			
EMx			Drawing type: Outline			
EMx			Document ID: 378828			
EMx			Revision/Version: A			

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445723 Rack installation kit dimensions



365290 KM 1000 mounting kit dimensions



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