Public

KONGSBERG

Technical specifications

Simrad SY50

Fish-finding sonar

kongsberg.com/sy50

SIMRAD
By KONGSBERG

PUBLIC

KONGSBERG

Simrad SY50
Fish-finding sonar
Technical specifications

The purpose of this publication is to present the technical specifications related to the Simrad SY50 system. These technical specifications summarize the main functional and operational characteristics of the SY50 Fish-finding sonar. They also provide information related to power requirements, physical properties and environmental conditions.

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

Caution

You must never permit the SY50 system to transmit (ping) when the ship is in a dry dock. The transducer can be damaged if it transmits in the open air.

Additional end-user documents related to the SY50 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.

- www.kongsberg.com/sy50

SIMRAD
By KONGSBERG

110-0035284/B

Document information

- **Product**: Simrad SY50
- **Document**: Technical specifications
- **Document part number**: 110-0035284
- **Revision**: B
- **Date of issue**: 20 November 2023

Copyright

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

Disclaimer

Kongsberg Discovery 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 your local dealer. You can also contact us using the following address: simrad.support@simrad.com. If you need information about our other products, visit https://www.kongsberg.com/simrad. On this website you will also find a list of our dealers and distributors.

Table of contents

Simrad SY50

Topics

Important

The SY50 is an advanced product. It is used with other advanced products. There is important information that you need to know.

Hoisting motor without brake

It is crucial that the power to the hull unit is always turned on, even when the sonar is not in use. If the power is turned off, the force of gravity may cause the transducer to be inadvertently lowered. The sonar has a safety function that will automatically hoist the transducer if unexpected problems arise. This function prevents the transducer from being lowered when the sonar is not used, but the power must be turned on.

Watertight integrity

The size, location and design of the sonar room must fulfil all the requirements to the vessel's watertight integrity.

In the event of a major leak, it must be possible to close all watertight hatches and/or doors to the room to maintain vessel stability and safety. The physical size of the sonar room must be limited, so that in the event of a major leak, the flooding of the room will not induce instability, or cause the vessel to capsize or sink.

For more information, see *Sonar room requirements*.

Mechanical support of the installation trunk

The installation trunk must be secured to the bulkheads and/or the hull by means of strengthening plates (stiffereners). The dimensions and strength of the plates must be adequate to prevent any vibrations. This is an invariable requirement to ensure the safety of the SY50 system and the vessel.

The shape and locations of the strengthening plates must be determined by the installation shipyard based on the physical properties of the installation trunk, the hull and the space available. Minimum four strengthening plates must be used. Each strengthening plate must extend all the way from the bottom to the top of the installation trunk. Only leave a small gap to allow access to the bolts and nuts used to secure the mounting flange. The minimum plate thickness is 10 mm, but the classification society can specify other dimensions.

Mechanical support of the hull unit gantry

The hull unit gantry must be secured to the bulkhead by means of mechanical support brackets. The dimensions and strength of the support brackets must be adequate to prevent vortex induced vibrations. This is an invariable requirement to ensure the safety of the SY50 system and the vessel.

We recommend that support brackets are placed pointing at minimum three directions with approximately 120 degrees between them.

The mechanical support brackets must be designed and manufactured by the installation shipyard to fit the complete installation in the sonar room. All calculations made to

support the design must meet the applicable safety requirements, and apply to the physical properties of the complete installation.

Before you turn on the SY50 system

Before you turn on the SY50 system, make sure that you have sufficient water depth to lower the transducer!

Caution

You must never turn on the SY50 system when the ship is in dry dock. The transducer can be damaged if it transmits in the open air.

When the SY50 system is not used

When you do not use the SY50 system, turn it off.

Note

You must never turn off the SY50 system by means of the on/off switch on the Processor Unit. You must ALWAYS use the Operating Panel.

When you are docking your vessel

You must never set the SY50 system to normal operation when the ship is in dry dock. The transducer can be damaged if it transmits in the open air. To prevent inadvertent use of the SY50 system, pull out the mains plug on the Processor Unit whenever your vessel is in dry dock. Additional precautionary measurers should be considered.

If something breaks down

If you believe that something has broken down, contact your local dealer. A list of all our dealers is provided on our website.

- www.kongsberg.com/sy50

If you are unable to contact a dealer, observe the support information in this publication.

When you want to turn off the SY50 system

You must never turn off the SY50 system by means of the on/off switch on the Processor Unit. When you do not use the SY50 system, turn it off with the **Power** button on the Operating Panel. If the transducer is lowered when you turn off the SY50 system, it is automatically retracted to its upper position.

Note

If you turn off the SY50 system by means of the on/off switch on the Processor Unit you can damage the software and the interface settings used to communicate with external devices.

Manual operation of the hull unit

In the event of improper operation, the powerful electric motor on the hull unit may cause serious damage to the equipment and/or injury to personnel. Therefore, before you start manual operation, read carefully through the relevant operating procedures.

Note

You must familiarize yourself with the correct handling methods and the relevant safety requirements.

Rules for transducer handling

A transducer must always be handled as a delicate instrument. Incorrect actions may damage the transducer beyond repair. A physical blow to the transducer face may easily damage one or more elements. Observe these transducer handling rules:

- **Do not** activate the transducer when it is out of the water.
- **Do not** handle the transducer roughly. Avoid impacts.
- **Do not** expose the transducer to direct sunlight or excessive heat.
- **Do not** use high-pressure water, sandblasting, metal tools or strong solvents to clean the transducer.
- **Do not** damage the outer protective skin of the transducer.
- **Do not** step on the transducer cable.
- **Do not** damage the transducer cable. Avoid exposure to sharp objects.

System description

The SY50 is an omnidirectional medium frequency fish-finding sonar designed for coastal fisheries.

The SY50 sonar system is mainly designed for smaller fishing vessels. It still offers the latest technology available, functionality you have formerly found only in the larger sonars and other acoustic systems we have designed.

- All transceiver electronics are placed inside the transducer. This means less cables, less noise and easier installation.
- The diameter of the installation trunk is eight inches. This makes it easy to retrofit an older sonar system with a new SY50 system.
- The hull unit can be placed on new or existing installation trunks with different heights. The height of the installation trunk and the length of the transducer shaft can be adjusted to fit the size of the vessel.
- The transducer can be lowered to 400 or 600 millimetres below the hull.
- Maximum vessel speed with the transducer fully lowered is 10 knots.

The centre operational frequency is 57 kHz. You can select any operational frequency from 55 to 59 kHz. This frequency range gives you an operating range of up to 2000 metres depending on the acoustic conditions.

The transmitted sonar beams can be tilted electronically. This allows you to search the whole water column and optimise the sonar performance to match the acoustic conditions. A built-in stabilizing system is included for electronic pitch and roll compensation, but you can connect to an external sensor for improved accuracy.

The compact size and ease of installation makes the SY50 system ideal for vessels with limited room for a sonar installation. There is no transceiver cabinet, only a small power supply. All transceiver electronics are placed inside the transducer. The communication between the hull unit and the Processor Unit on the bridge is limited to a single Ethernet cable. Both the hull unit and the Processor Unit can operate from DC power. This makes the SY50 system a perfect choice for coastal fishing vessels that do not have 3-phase power on-board.

The SY50 system transmits and receives using centre frequency 57 kHz. This allows a typical range up to 2000 metres. By means of 256 individual channels the SY50 system offers a clear and high-resolution sonar presentation not previously seen on a sonar in this price range. Our well known "large sonar“ functions like full beam stabilisation, vertical views, FM transmission, single-ping transmission (horizontal and vertical in one ping) are included. The popular operating software known from all our latest products is used. With the user interface available in almost 20 languages the SY50 system is exceptionally easy to use.

The system is provided with a small and compact computer. It does not contain any fans or other moving parts, and can safely be installed in a humid environment. To simplify the basic operating features we can also provide a small operating panel.

The SY50 system offers the same user interface and operating software as our other sonars, echo sounders and catch monitoring systems. This enables easier and faster training of new users.

- The echo presentations are optimised for multiple displays. Provided that you have connected additional displays to your Processor Unit, you can use the **Docking Views** function to take any sonar view and place it on a separate display. When you move a view to another display, it will automatically be scaled for the best possible result.
- It is common for sonars to require many pings to build the various views in the echo presentation. On the SY50, all the sonar views in the presentation are built using the echoes from one single ping. This dramatically improves the update rate and provides better real-time information.
- The SY50 system permits you to record real-time sonar situations. This allows you to replay complete sequences. The playback contains the exact same echo information, and can be used for mission history, training or troubleshooting purposes.

Great emphasis has been placed on an intuitive user interface and the best possible sonar presentations on a high resolution colour display.

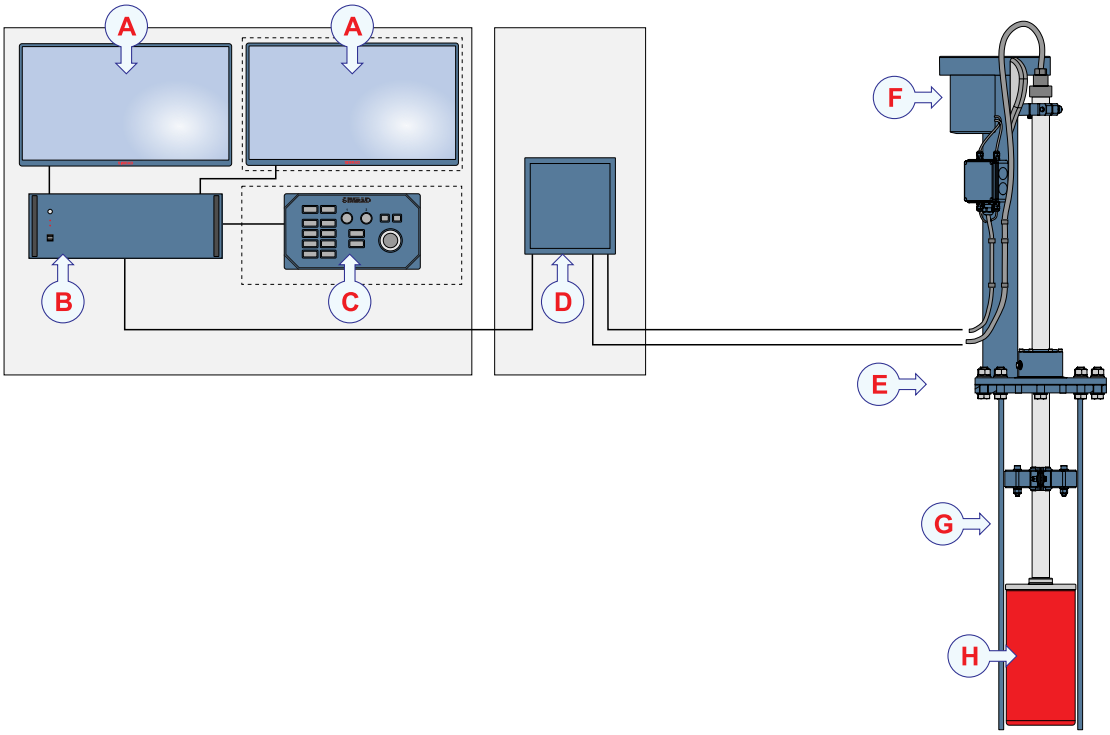
The SY50 system is equipped with the celebrated signal processing software developed by Kongsberg Discovery. This includes Hyperbolic FM (HFM) transmissions. This

pulse type is also known as "chirp". It ensures a clutter free picture with very high resolution in range. The signal processing and beamforming is performed in a fast digital signal processing system using the full dynamic range of the signals.

The SY50 system software operates using the Microsoft® Windows® operating system.

System diagram

The system diagram identifies the main components of a basic SY50 system. Only the main connections between the units are shown. Detailed interface capabilities and power cables are not shown.



A	*Display*	**E**	*Hull Unit*
B	*Processor Unit*	**F**	*Hoisting motor*
C	*Operating Panel*	**G**	*Installation trunk*
D	*Power Supply Unit*	**H**	*Transducer*

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

Unless otherwise specified in a contract, the display is not included in the standard delivery. This is a commercial item that can be purchased locally.

A choice of hull units is available for the SY50 system. The hull units offer different physical properties and lowering depths. The same transducer is used on all hull unit types.

System units

Topics

Display description

A display is a required part of the SY50 system. For best readability, the display must be protected from glare and have the correct height and angle.

Any commercial display can be used with the SY50 system, provided that the chosen display meets the minimum requirements.

Tip

You may find it useful to have more than one display connected to the SY50 system. The number of displays must be chosen to fit the preferences of the crew.

The display is not a standard part of the delivery. This is a commercial item that can be purchased locally. Kongsberg Discovery may provide a suitable display. The chosen display must be designed for maritime use, and it must meet the minimum performance specifications. The video interface must match the output format(s) provided by the Processor Unit.

Related topics

Simrad SY50, page 5
System units, page 12

Processor Unit description

A dedicated maritime computer is provided. In this publication, the computer can also be referred to as the *Processor Unit*, and vice versa.

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 SY50 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.

The Nexcom NISE 3900E Processor Unit operates on DC power.

- **Voltage requirement**: 9–30 VDC
- **Power consumption**: 120 W @ 24 VDC (Approximately)

If you want to use the computer on AC power you need a power supply. A suitable power supply may be provided with the SY50 system delivery.

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.

Note

The Processor Unit does not contain any fans. It will be very warm, even during normal operation. This is by design.

The computer exists in several versions. The photos used in this publication may not match the exact model you have.

Related topics

Simrad SY50, page 5
System units, page 12

Power Supply Unit description

A dedicated power supply unit is provided with the SY50 system. The purpose of the Power Supply Unit is to provide the hull unit with the necessary power for operation.

The Power Supply Unit also controls the Ethernet communication between the transducer and the Processor Unit. The Power Supply Unit further contains the logic circuitry required to control the lower and hoist operation, as well as a small motion sensor.

The Power Supply Unit is mounted on the bulkhead close to the hull unit.

WARNING

The Power Supply Unit contains high voltages. Unless required for maintenance purposes, do not open the cabinet door while the SY50 system is switched on.

Observe the physical size and weight of the Power Supply Unit. Unless a suitable lifting device available, make sure that enough manpower is available to lift, hold and fasten the Power Supply Unit. Avoid installation heights exceeding two metres.

Related topics

Simrad SY50, page 5
System units, page 12

Hull Unit description

The hull unit is used to lower the transducer down below the ship's hull when the SY50 system shall be used. When the SY50 system is turned off, the transducer is hoisted for protection.

The hull unit is a mechanical construction. It is mounted on the top of the installation trunk. The installation trunk penetrates the ship's hull, and allows the transducer to be lowered into the sea. The hull unit is normally located in the forward part of the vessel. This location is recommended to avoid the noise from the propellers and the engine.

Caution

When the transducer is lowered, the depth of water under the vessel must be monitored closely.

If the transducer hits larger objects or bottom, the transducer shaft may be bent, or - in worst case - it can be broken off. A broken transducer shaft will cause water leakage through the top of the shaft. If you suspect that the transducer shaft is seriously damaged do not retract the transducer to its upper position.

To prevent serious damage to the vessel or the vessel stability, you must have a water pump and a warning system in the sonar room.

If you forget to hoist the transducer before the SY50 system is turned off, the transducer is hoisted automatically before the power is disconnected. The transducer is also hoisted automatically if a serious malfunction occurs to the communication between the bridge and the hull unit.

In the event of improper operation, the powerful electric motor on the hull unit may cause serious damage to the equipment and/or injury to personnel. Therefore, before you start manual operation, read carefully through the relevant operating procedures. You must familiarize yourself with the correct handling methods and the relevant safety requirements.

The SY50 system can be provided with one of the following hull units:

Hull Unit	Lowering depth (mm)	Maximum speed (knots)
SY50	400/600	12
SY50C	400	12
The same transducer is used on all hull unit types.		

Important

The hull unit gantry must be secured to the bulkhead by means of mechanical support brackets. The dimensions and strength of the support brackets must be adequate to prevent vortex induced vibrations. This is an invariable requirement to ensure the safety of the SY50 system and the vessel.

We recommend that support brackets are placed pointing at minimum three directions with approximately 120 degrees between them.

The mechanical support brackets must be designed and manufactured by the installation shipyard to fit the complete installation in the sonar room. All calculations made to support the design must meet the applicable safety requirements, and apply to the physical properties of the complete installation.

Related topics

Simrad SY50, page 5
System units, page 12

Transducer description

The cylindrical transducer allows the sonar beam to provide a full 360 degrees coverage of the water volume. The horizontal beam can be tilted from –10 to +60 degrees.

The transducer converts the electric energy generated by the transmitter circuitry to physical vibrations. These vibrations alter the water pressure, and create an acoustic pulse that is sent into the water. The acoustic signal is transmitted as a beam. The duration of the acoustic pulse, as well as its frequency and shape, are controlled by the system software. The direction and opening angle of the beam is controlled by the transmitter circuitry and the physical properties of the transducer. After the transmission, the transducer works as a "microphone". It converts the water pressure created by the acoustic echoes to electric energy. These weak echo signals are sent to the amplifiers in the receiver circuitry.

Note

The transducer is covered with a thick red or black protective coating made of a special plastic type. The protective coating is a vital part of the transducer. It is very important that neither this coating nor the internal parts of the transducer are damaged during the handling, installation or cleaning. Any holes and/or scratches in the transducer surface will allow water to penetrate the transducer. If a leak occurs, the transducer must be replaced.

The transducer is mounted at the bottom end of the hull unit's transducer shaft. This allows the transducer to be lowered into the water for operational use, and retracted for protection when the SY50 system is turned off. By lowering the transducer into the water, you may also be able to reduce the noise created by the laminar flow of water along the hull.

The same transducer is used on all hull unit types.

Shape: Cylindrical

Number of individual elements: 256

Transducer cable length: 10 m

Rules for transducer handling

A transducer must always be handled as a delicate instrument. Incorrect actions may damage the transducer beyond repair. A physical blow to the transducer face may easily damage one or more elements. Observe these transducer handling rules:

- **Do not** activate the transducer when it is out of the water.
- **Do not** handle the transducer roughly. Avoid impacts.
- **Do not** expose the transducer to direct sunlight or excessive heat.
- **Do not** use high-pressure water, sandblasting, metal tools or strong solvents to clean the transducer.
- **Do not** damage the outer protective skin of the transducer.
- **Do not** step on the transducer cable.
- **Do not** damage the transducer cable. Avoid exposure to sharp objects.

Related topics

Simrad SY50, page 5
System units, page 12

Installation trunk description

An installation trunk is required for hull unit installation. The installation trunk is not included in the standard delivery.

The installation trunk provides the physical foundation for the entire hull unit. The installation trunk penetrates the hull. The installation trunk is therefore a crucial part of the hull unit assembly. In order to ensure proper operation of the SY50 system, the physical location of the installation trunk must be carefully selected.

The installation trunk - with a blind flange - can be ordered from Kongsberg Discovery as an optional delivery. As an alternative, the installation trunk can be manufactured by the shipyard based on the drawings in this manual. A locally manufactured installation trunk can be adjusted to better fit the properties of the vessel's hull.

Note

If the installation trunk is manufactured locally, the installation shipyard is responsible for obtaining the approval certificates from the relevant national registry.

Important

The installation trunk must be secured to the bulkheads and/or the hull by means of strengthening plates (stiffereners). The dimensions and strength of the plates must be adequate to prevent any vibrations. This is an invariable requirement to ensure the safety of the SY50 system and the vessel.

The shape and locations of the strengthening plates must be determined by the installation shipyard based on the physical properties of the installation trunk, the hull and the space available. Minimum four strengthening plates must be used. Each strengthening plate must extend all the way from the bottom to the top of the installation trunk. Only leave a small gap to allow access to the bolts and nuts used to secure the mounting flange. The minimum plate thickness is 10 mm, but the classification society can specify other dimensions.

Related topics

Simrad SY50, page 5
System units, page 12

Additional required and optional items

Topics

Installation trunk requirement

An installation trunk is required for hull unit installation. The installation trunk is not included in the standard delivery.

The installation trunk provides the physical foundation for the entire hull unit. The installation trunk penetrates the hull. The installation trunk is therefore a crucial part of the hull unit assembly. In order to ensure proper operation of the SY50 system, the physical location of the installation trunk must be carefully selected.

The installation trunk - with a blind flange - can be ordered from Kongsberg Discovery as an optional delivery. As an alternative, the installation trunk can be manufactured by the shipyard based on the drawings in this manual. A locally manufactured installation trunk can be adjusted to better fit the properties of the vessel's hull.

Note

If the installation trunk is manufactured locally, the installation shipyard is responsible for obtaining the approval certificates from the relevant national registry.

Tip

You can use a standard pipe to manufacture your own installation trunk. Use the following type:

- *219.1x12.7, 8" Schedule 80*

You can also use an existing installation trunk provided that it complies to the following internal diameter:

- *Steel: ø190 ±0.5 mm*
- *Aluminium: ø191 +3/-0 mm*

Speed log requirement

In order to operate correctly, the SY50 system requires input from a speed log. Unless specified in the contract, a speed log is not a part of the SY50 system delivery. Provided that a speed log sensor is interfaced to the SY50 system, the vessel's current speed can be presented in the user interface.

Note

Without speed information, the SY50 system will neither be able to present correct navigational information, nor compensate for vessel movements. This lack of compensation will prevent the system from providing correct echo information.

In most cases a suitable sensor is already installed on the vessel. A global positioning system (GPS) with a compatible output format can also be used.

Course gyro requirement

In order to operate correctly, the SY50 system requires input from a course gyro. A course gyro is not a part of the SY50 delivery. When a course gyro is connected to the SY50, the vessel's current heading can be presented in the user interface.

Without the input from a course gyro, the SY50 system will not be able to present correct navigational information. In most cases a suitable course gyro is already installed on the vessel.

Note

Most global positioning system (GPS) can provide course information, but this data is generally too inconsistent to provide a stable presentation on the SY50 system. This inconsistency is especially noticeable at low vessel speeds. Incorrect course information can then result in settings not working properly.

We recommend that you use a satellite compass or a gyro compass.

Uninterruptible power supply (UPS) requirement

It is important to ensure continuous operation of the SY50 system independent of any varying quality of the vessel's mains supply. The use of uninterruptible power supplies (UPS) is therefore required.

Uninterruptible power supply units are not included in the standard SY50 system delivery. These items must be purchased locally. Several commercial types are available.

Note

Make sure that the Uninterruptible Power Supply (UPS) does not generate switching noise in the same frequency band as the SY50 system.

To choose the best power solution for your installation, consider environmental conditions, the physical space available, the availability and duration of the batteries, and the power requirements of the SY50 system.

Operating Panel option

The optional Operating Panel contains all necessary control functions for normal operation of the SY50 system.

The controls provided by the Operating Panel are arranged in logical functional groups. This offers you clear and easy operation with fast access to key functionality. All the functionality provided by the SY50 system can be accessed using the trackball on the Operating Panel and the menu system shown in the display presentation.

The SY50 system supports two different operating panels. These are referred to as "Mk2" and "Mk3".

- The Mk2 Operating Panel is connected to the Processor Unit using an Ethernet cable.
- The Mk3 Operating Panel is connected to the Processor Unit with a USB cable.

The Mk3 Operating Panel is the standard panel provided for the SY50 system.

Global positioning system (GPS) option

A global positioning system (GPS) may be connected to the SY50 system.

When a global positioning system (GPS) connected to the SY50 system, the vessel's current geographical position can be presented in the user interface. It will also provide latitude and longitude information for the cursor and marker(s). In addition to navigational data, the global positioning system (GPS) can also be used to provide speed information.

Note

Most global positioning system (GPS) can provide course information, but this data is generally too inconsistent to provide a stable presentation on the SY50 system. This inconsistency is especially noticeable at low vessel speeds. Incorrect course information can then result in settings not working properly.

Scope of supply

To assemble a complete SY50 system you need all the system units. The main units you need are provided with the standard delivery. Additional items are required for operation. These items must be added to the SY50 system for full operational functionality. Some items are optional. Such items can be purchased from Kongsberg Discovery or obtained locally.

Basic items

When you unpack the parts provided with the SY50 system delivery, make sure that the correct items are included. The quantity of each item is specified in the contract and/or the order confirmation. Relevant order information is provided on our website.

- www.kongsberg.com/sy50

Operational software

Operational software is provided on a suitable media.

End-user documentation

End-user documentation is provided on paper and/or digital formats. End user manuals and source drawings (normally in AutoCad format) can be downloaded from our website.

- www.kongsberg.com/sy50

Order information

To order the SY50 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.

- www.kongsberg.com/sy50

General safety rules

Safety is important. The safety precautions must be followed at all times during installation and maintenance work.

WARNING

The SY50 system operates on 24 VDC and/or 230 VAC (50/60 Hz). These voltages are potentially lethal! You must never work alone on high-voltage equipment!

This equipment must be installed, adjusted, and serviced only by qualified electrical maintenance personnel familiar with the construction and operation of the equipment and the hazards involved. Failure to observe this precaution could result in bodily injury.

Personnel requirements

All personnel must be trained in relevant installation and maintenance work.

Personal protection

Installation personnel must wear suitable work clothes. The work clothes must not contain sufficient static to ignite. Always wear a hard hat and suitable protective footwear while handling heavy objects.

Power and ground

You must always turn off all power before installation or maintenance work on the SY50 system. Use the main circuit breaker, and label the breaker with a warning sign that informs others that maintenance or installation work is in progress on the system.

For safety reasons, two persons must always be present during troubleshooting with power turned ON.

All SY50 system units must be properly grounded.

First aid

Read and understand the applicable first aid instructions related to electric shock.

Whenever installation or maintenance work is in progress, it is essential that a first aid kit is available. All personnel must be familiar with the first aid instructions for electrical shock and other personal injuries.

Weight

The various parts of the system may be heavy. Make sure that the appropriate tools and certified lifting equipment are available. Always wear a hard hat and suitable protective footwear while handling heavy objects.

Cables

Each electric cable must be handled carefully. This is important to avoid damage to the cable. This is also important to avoid electric shock in the event that the cable is unintentionally connected to a power source.

Cabinets

Do not open racks or cabinet doors while sailing in rough seas. Doors and/or cabinet parts may suddenly swing open and cause damage or injury.

Installation requirements

Topics

Supply voltage requirements

The supply voltage must kept within ±10% of the installation's nominal voltage.

Maximum transient voltage variations on the main switchboard's bus-bars must not exceed -15% to +20% of the nominal voltage (except under fault conditions).

Uninterruptible power supply (UPS) requirements

It is important to ensure continuous operation of the SY50 system independent of any varying quality of the vessel's mains supply. The use of uninterruptible power supplies (UPS) is therefore required.

Uninterruptible power supply units are not included in the standard SY50 system delivery. These items must be purchased locally. Several commercial types are available.

Note

Make sure that the Uninterruptible Power Supply (UPS) does not generate switching noise in the same frequency band as the SY50 system.

To choose the best power solution for your installation, consider environmental conditions, the physical space available, the availability and duration of the batteries, and the power requirements of the SY50 system.

Two UPS systems are required.

1 One UPS system is required to supply the Processor Unit and the display.

2 One UPS system is required to supply the Power Supply Unit and the hull unit.

Note

A single UPS system is sufficient if the power capacity is provided and long cable runs are avoided.

The minimum requirements for the uninterruptible power supply (UPS) are:

- **Input voltage**: The input voltage must match the vessel's supply voltage.
- **Output voltage**: 230 VAC, 50 Hz
- **Output power**:

  Two separate uninterruptible power supplies are used:

  – Processor Unit/Display: 200 W

  – Power Supply Unit/**Hull Unit**: 750 W

  One single uninterruptible power supply is used to power the entire SY50 system:

  – Output power: 1000 W
- **Output form**: The output AC voltage must be a sine wave.

Cables and wiring requirements

Correct wiring is crucial for the operational performance of the SY50 system.

All cables running between system cabinets located in different rooms and/or on different decks must be supported and protected along their entire lengths using conduits and/or cable trays. Note that the cables must not be installed in the vicinity of high-power supplies and cables, antenna cables or other possible sources of interference.

Compass deviation requirements

SY50 units that are installed on the bridge may have an effect on the compass.

Once the installation is complete, the vessel must be swung with the SY50 system in both operative and inoperative modes. The shipowner and captain are responsible for updating the compass deviation table accordingly with regard to the vessel’s national registry and corresponding maritime authority.

Noise sources

The operational performance of the SY50 system depends on the noise conditions. It is essential that the noise signature is as low as possible.

Vessel noise

The vessel’s hull, rudder(s) and propeller(s) must be thoroughly inspected in dry dock prior to installation.

Roughness below the water-line deformities in the shell plating and protruding obstacles can create underwater noise. These sources of turbulence must be smoothed or removed as best as possible.

Note

It is especially important that the propeller(s) are not pitted or damaged.

Electrical noise

The quality of the vessel's supply power is crucial to reduce noise. Electrical or electronic self noise is picked up or generated in any other part of the equipment than the transducer. The most common source of electrical self-noise is hum. Hum is typically generated by low-quality power supplies. Cables and sensitive electronic circuitry can easily pick up hum. At higher frequencies – where rather wide bandwidths are necessary – the noise from components, transistors or other analogue electronic may be a limiting factor.

Dry docking requirements

Whenever a hull unit and an installation trunk are mounted under the vessel's hull, special considerations must be made prior to dry docking.

Make sure that ample clearance under the SY50 installation trunk and/or blister is provided when you are placing the vessel in dry dock. Avoid locating supporting blocks or structures in the vicinity of the SY50 installation trunk.

Important

Prior to dry docking, turn off the SY50 system. If necessary, disengage the circuit breaker. Label the Processor Unit and/or the circuit breaker clearly to prevent anyone from accidentally turning on the SY50 system.

Requirement for classification approval

Classification approval is required for the SY50 system installation.

Network security

If a SY50 system is connected to a local area network, data security is important.

Equipment manufactured by Kongsberg Discovery is often connected to a local area network (LAN). When you connect a computer to a local area network you will always expose the data on that computer. All the other computers connected to the same network may be able to access your data. Several threats are imminent:

- Remote computers can read your data.

- Remote computers can change your data.
- Remote computers can change the behavior of your computer, for example by installing unwanted software.

Usually, two parameters are used to define the threat level:

1 The likelihood that any remote computer will do any of the above.

2 The damage inflicted if a remote computer succeeds doing any of the above.

Products provided by Kongsberg Discovery are always regarded as stand-alone offline systems. They are regarded as stand-alone even though they may be connected to a local area network for sensor interfaces or data distribution.

Note

No network safety applications are installed on Kongsberg Discovery computers. The computer is not protected against viruses, malware or unauthorized access by external users.

Securing the SY50 system has no meaning unless you have established a policy that secures all the computers on the network. This policy must include physical access by trained and trusted users. As an end user of the SY50 system, you are responsible for defining and implementing a security policy and providing the relevant network security applications.

Note

Kongsberg Discovery has no information about your complete system installation. We cannot estimate the threat level and your need for network security. For this reason, we cannot accept responsibility for the network security.

Kongsberg Discovery will not accept any responsibility for errors or damages caused by unauthorized use of or access to the SY50 system.

Support information

If you need technical support for your SY50 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)

- **Company name**: Kongsberg Maritime AS / Simrad
- **Address**: Strandpromenaden 50, N3190 Horten, Norway
- **Telephone**: +47 33 03 40 00
- **Telefax**: +47 33 04 29 87

- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.support@simrad.com

Spain

- **Company name**: Kongsberg Maritime Spain S.L.U
- **Address**: Partida Atalayes 20, 03570 Villajoyosa, Spain
- **Telephone**: +34 966 810 149
- **Telefax**: +34 966 852 304
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.spain@simrad.com

France

- **Company name**: Simrad France
- **Address**: 5 rue de Men Meur, 29730 Guilvinec, France
- **Telephone**: +33 298 582 388
- **Telefax**: +33 298 582 388
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.france@simrad.com

USA

- **Company name**: Kongsberg Underwater Technology LLC (KUTL) / Simrad Fisheries
- **Address**: 19210 33rd Ave W, Suite A, Lynnwood, WA 98036, USA
- **Telephone**: +1 425 712 1136
- **Telefax**: +1 425 712 1193
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: fish.usa.support@simrad.com

Canada

- **Company name**: Kongsberg Mesotech Ltd.
- **Address**: 1598 Kebet Way, Port Coquitlam, BC, V3C 5M5, Canada
- **Telephone**: +1 604 464 8144
- **Telefax**: +1 604 941 5423
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.canada@simrad.com

Malaysia

- **Company name**: Kongsberg Maritime Malaysia Sdn. Bhd

- **Address**: Unit 27-5 Signature Offices, The Boulevard, Mid Valley City, Lingkaran Syed Putra, 59200 Kuala Lumpur, Malaysia
- **Telephone**: +65 6411 7488
- **Telefax**: +60 3 2201 3359
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.asia@simrad.com

Korea

- **Company name**: Kongsberg Maritime Korea Ltd
- **Address**: #1101 Harbor Tower, 113-1, Nampodong 6-Ga, Jung-Gu, Busan 600-046, Korea
- **Telephone**: +82 51 242 9933
- **Telefax**: +82 51 242 9934
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.korea@simrad.com

China

- **Company name**: Kongsberg Maritime China Ltd
- **Address**: 555 Chuanqiao Road, China (Shanghai) Pilot Free Trade Zone, 201206, China
- **Telephone**: +86 21 3127 9888
- **Telefax**: +86 21 3127 9555
- **Website** : www.kongsberg.com/simrad
- **E-mail address**: simrad.china@simrad.com

Technical specifications

Topics

Introduction to technical specifications

These technical specifications summarize the main functional and operational characteristics of the SY50 Fish-finding sonar. They also provide information related to power requirements, physical properties and environmental conditions.

Note

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

Related topics
Technical specifications, page 31

Performance specifications

These performance specifications summarize the main functional and operational characteristics of the SY50 system.

Operating frequency

Frequency range:

- Start frequency: 55 kHz
- End frequency: 59 kHz
- Frequency steps: 1 kHz

Operational range

- Minimum: 25 metres
- Maximum: 2500 metres
- Maximum theoretical range: 2000 metres

Even though you can choose a large range value, that does not mean that you can detect your targets on the same range. The range value only defines the range that is shown in the views. Actual target detection will always depend on the operational environment, such as water temperature, salinity, interference and layers in the water column.

Tilt function

- **Horizontal views**: –10 ⇄ +60 degrees
- **Vertical views**: 0 ⇄ +90 degrees
- **Plane view**: –10 ⇄ +90 degrees
- **Inspection views**: –10 ⇄ +60 degrees

Note

The tilt limits depend on the opening angle of the vertical beam. This means that you may not always be permitted to select the maximum specified tilt limits.

Transmission

- **Number of transmitter channels**: 256
- **Horizontal TX Sector:**

	Maximum	**Other options**
Horizontal swath	360 degrees	30, 60, 90, 120, 180 degrees
Vertical swath	Normal	Narrow
Plane swath	180 degrees	30, 60, 90, 120 degrees
Inspection beams	-	-

- **Vertical TX Sector:**

	Maximum	**Other options**
Horizontal swath	Wide	Narrow, Normal, Auto
Vertical swath	90 degrees	30, 60 degrees
Plane swath	Wide	Narrow, Normal, Auto
Inspection beams	-	-

The options provided by these functions depend on your current active view.

Pulse types

- CW (Continuous Wave)
- LFM (Linear Frequency Modulation) (This pulse type is also known as "chirp".)
- Auto

Reception

- **Number of receiver channels**: 256
- **Gain functions**:
  - TVG (Time Variable Gain)
  - AGC (Automatic Gain Control)
  - RCG (Reverberation Controlled Gain)
- **Digital filters**:
  - Ping-Ping Filter
  - Noise Filter

  - FM Correlation filter
  - Target Threshold

Echo presentations

- **Display resolution**: 1280 x 1024 pixels (Minimum). The visual quality of the presentation depends on the quality of your graphic adapter and display. We recommend that you use a large display with resolution 1920 x 1080.
- **Colours**: A selection of echo colours is available to fit your presentation preferences. Each selection represents a dedicated colour scale.
- **Palettes**: A choice of colour palettes is available to fit ambient light conditions.

Stabilization

- **Roll stabilisation**: ±20 degrees (Automatic)
- **Pitch stabilisation**: ±20 degrees (Automatic)
- **External stabilisation sensor**: The SY50 system has been designed to match the motion reference unit (MRU) sensors manufactured by our Seatex division. Interface to an optional peripheral motion reference unit (MRU) is supported.

Interfaces

- **Interfaces to peripheral devices**:
  - Serial lines
  - Ethernet (LAN) line
- **Optional interfaces**:
  - Scientific output (NetCDF)

Note

NetCDF output requires a dedicated software license.

User interface

- **Main control**: The Operating Panel offers all necessary control functions for normal operation.
- **Secondary control**: A comprehensive menu system allows access to all SY50 system functionality.
- **Optional control**:
  - You can use a standard computer mouse to control the SY50 system.

  - You can use a Microsoft Xbox Controller to make basic adjustments to the sonar operation.
- **Menu languages**: The text in the menu buttons in the user interface can be provided in several different languages. With a few exceptions, the chosen language is also used for all other texts.

Hull Unit

The SY50 system can be provided with one of the following hull units:

Hull Unit	Lowering depth (mm)	Maximum speed (knots)
SY50	400/600	12
SY50C	400	12
The same transducer is used on all hull unit types.		

Installation trunk

The installation trunk is not included in the standard delivery. The installation trunk may be fabricated by the shipyard, or supplied by us as an option.

Type approval: DnV Certificate S-6344

Transducer

The same transducer is used on all hull unit types.

Shape: Cylindrical

Number of individual elements: 256

Transducer cable length: 10 m

Related topics

Technical specifications, page 31

Power requirements

These power characteristics summarize the supply power requirements for the SY50 system.

Topics

Display power requirements

Not applicable. The display is not a part of the SY50 scope of supply. It is not manufactured by Kongsberg Discovery. For more information, refer to the end-user documentation provided by the manufacturer.

Related topics

Technical specifications, page 31
Power requirements, page 36

Nexcom NISE 3900E Processor Unit power requirements

- **Manufacturer**: Nexcom
- **Manufacturer's website**: https://www.nexcom.com
- **Model**: Nexcom NISE 3900E
- **Voltage requirement**: 9–30 VDC
- **Power consumption**: 120 W @ 24 VDC (Approximately)

The technical specifications are those valid for the computer that is provided by Kongsberg Discovery as a part of the SY50 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.

Related topics
Technical specifications, page 31
Power requirements, page 36

Operating Panel power requirements (Mk2)

- **Make and model**: SY50 Operating Panel (Mk2)
- **Voltage requirement**: 115/230 VAC, 47 to 63 Hz, single phase, nominal
- **Maximum voltage deviation**: 15%
- **Maximum transient**: 20% of nominal voltage, recovery time 3 s
- **Power consumption**: 10 W (Approximately)

Related topics
Technical specifications, page 31
Power requirements, page 36

Operating Panel power requirements (Mk3)

- **Make and model**: SY50 Operating Panel Mk3
- **Voltage requirement**: Not applicable

This unit is powered by means of the USB connection.

Related topics
Technical specifications, page 31
Power requirements, page 36

Power Supply Unit power requirements

- **Make and model**: SY50 Power Supply Unit
- **Voltage requirement**:
  - 230 VAC

    (47 to 63 Hz/Single phase/Nominal voltage)

    or
  - 24 VDC
- **Maximum voltage deviation (VAC)**: 15%
- **Maximum transient (VAC)**: 20% of nominal voltage, recovery time 3 s
- **Power consumption**:
  - Hoisting motor running: 600 W (Approximately)

  - Hoisting motor idle: 80 W (Approximately)

Related topics
Technical specifications, page 31
Power requirements, page 36

Hull Unit power requirements

- **Make and model**: Hull Unit SY50
- **Model**: SY50/SY50C
  - **Voltage requirement**: Not applicable

All necessary operating power is provided by the Power Supply Unit.

Related topics
Technical specifications, page 31
Power requirements, page 36

Weights and outline dimensions

These weights and outline dimension characteristics summarize the physical properties of the SY50 system.

Topics

Display weight and outline dimensions

Not applicable. The display is not a part of the SY50 scope of supply. It is not manufactured by Kongsberg Discovery. For more information, refer to the end-user documentation provided by the manufacturer.

Related topics

Technical specifications, page 31
Weights and outline dimensions, page 39

Nexcom NISE 3900E Processor Unit weight and outline dimensions

- **Manufacturer**: Nexcom
- **Manufacturer's website**: https://www.nexcom.com
- **Model**: Nexcom NISE 3900E
- **Outline dimensions** (without mounting bracket):
  - **Depth**: 272 mm
  - **Width**: 215 mm
  - **Height**: 94 mm
- **Weight**: 5 kg (Approximately)

The technical specifications are those valid for the computer that is provided by Kongsberg Discovery as a part of the SY50 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.

Related topics
Technical specifications, page 31
Weights and outline dimensions, page 39

Operating Panel weight and outline dimensions (Mk2)

- **Make and model**: SY50 Operating Panel (Mk2)
- **Outline dimensions**:
  - **Depth**: 183 mm
  - **Width**: 346 mm
  - **Height**: 123 mm
- **Weight**: 3.7 kg (Approximately)

Related topics
Technical specifications, page 31
Weights and outline dimensions, page 39

Operating Panel weight and outline dimensions (Mk3)

- **Make and model**: SY50 Operating Panel Mk3
- **Outline dimensions**:
  - **Depth**: 57 mm
  - **Width**: 225 mm
  - **Height**: 125 mm
- **Weight**: 0.45 kg (Approximately)

Related topics
Technical specifications, page 31
Weights and outline dimensions, page 39

Power Supply Unit weight and outline dimensions

- **Make and model**: SY50 Power Supply Unit
- **Outline dimensions** (including cable glands):

  - **Depth**: 219 mm
  - **Width**: 300 mm
  - **Height**: 438 mm
- **Weight**: 12.5 kg

Related topics
Technical specifications, page 31
Weights and outline dimensions, page 39

Hull Unit weight and outline dimensions

- **Make**: SY50 Hull Unit
- **Model**: SY50
  - **Flange diameter**: 343 mm
  - **Number of holes in the flange**: 8
  - **Total height**: 1749* mm
  - **Height above the installation trunk**: 861 mm
  - **Weight**: 77 - 103 kg (Approximately)
- **Model**: SY50C
  - **Flange diameter**: 343 mm
  - **Number of holes in the flange**: 8
  - **Total height**: 1199* mm
  - **Height above the installation trunk**: 661 mm
  - **Weight**: 70 - 101 kg (Approximately)

* The total height depends on the vessel specific installation properties.

Related topics
Technical specifications, page 31
Weights and outline dimensions, page 39

Environmental requirements

These environmental specifications summarize the temperature and humidity requirements for the SY50 system.

Topics

Display environmental requirements

Not applicable. The display is not a part of the SY50 scope of supply. It is not manufactured by Kongsberg Discovery. For more information, refer to the end-user documentation provided by the manufacturer.

Related topics

Technical specifications, page 31
Environmental requirements, page 42

Nexcom NISE 3900E Processor Unit environmental requirements

- **Manufacturer**: Nexcom
- **Manufacturer's website**: https://www.nexcom.com
- **Model**: Nexcom NISE 3900E
- **Operating temperature**: -5 to 55 °C
- **Storage temperature**: -20 to 80 °C
- **Relative humidity**: 10 to 95% relative non-condensing
- **Certificates**:
  - CE approval EN61000-6-2
  - CE approval EN61000-6-4
  - FCC Class A
- **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 Discovery as a part of the SY50 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.

Related topics
Technical specifications, page 31
Environmental requirements, page 42

Operating Panel environmental requirements (Mk2)

- **Make and model**: SY50 Operating Panel (Mk2)
- **Operating temperature**: 0 to +50 °C
- **Storage temperature**: -40 to 70 °C
- **Relative humidity**: 5 to 95% relative, non-condensing

Related topics
Technical specifications, page 31
Environmental requirements, page 42

Operating Panel environmental requirements (Mk3)

- **Make and model**: SY50 Operating Panel Mk3
- **Operating temperature**: 0 to +50 °C
- **Storage temperature**: -40 to 70 °C
- **Relative humidity**: 5 to 95% relative, non-condensing
- **Ingress protection (IP) code**: IP65

Related topics
Technical specifications, page 31
Environmental requirements, page 42

Power Supply Unit environmental requirements

- **Make and model**: SY50 Power Supply Unit
- **Operating temperature**: 0 to +50 °C

- **Storage temperature**: -40 to 70 °C
- **Relative humidity**: 5 to 95% relative, non-condensing

Related topics
Technical specifications, page 31
Environmental requirements, page 42

Hull Unit environmental requirements

- **Make**: SY50 Hull Unit
- **Model**: SY50/SY50C
  - **Operating temperature**: 0 to +50 °C
  - **Storage temperature**: -20 to 40 °C
  - **Relative humidity**: 5 to 95% relative, non-condensing

Note

Do not *expose the transducer to direct sunlight or excessive heat.*

Related topics
Technical specifications, page 31
Environmental requirements, page 42

Compass safe distance

If you place any of the SY50 Fish-finding sonar units on the bridge, you must observe the physical distance to the compass.

Topics

Display compass safe distance

Not applicable. The display is not a part of the SY50 scope of supply. It is not manufactured by Kongsberg Discovery. For more information, refer to the end-user documentation provided by the manufacturer.

Related topics

Technical specifications, page 31
Compass safe distance, page 45

Nexcom NISE 3900E Processor Unit compass safe distance

- **Manufacturer**: Nexcom
- **Manufacturer's website**: https://www.nexcom.com
- **Model**: SY50 Processor Unit (Nexcom NISE 3900E)
- **Standard compass**: The manufacturer has not provided this information.
- **Other compass**: The manufacturer has not provided this information.

The technical specifications are those valid for the computer that is provided by Kongsberg Discovery as a part of the SY50 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.

Related topics
Technical specifications, page 31
Compass safe distance, page 45

Operating Panel compass safe distance (Mk2)

- **Make and model**: SY50 Operating Panel Mk2
- **Standard compass**: 25 cm
- **Other compass**: 16.5 cm

Related topics
Technical specifications, page 31
Compass safe distance, page 45

Operating Panel compass safe distance (Mk3)

- **Make and model**: SY50 Operating Panel (Mk3)
- **Standard compass**: This information is currently not available.
- **Other compass**: This information is currently not available.

Related topics
Technical specifications, page 31
Compass safe distance, page 45

Power Supply Unit compass safe distance

- **Make and model**: SY50 Power Supply Unit
- **Compass safe distance**:
  - Standard compass: 150 mm
  - Other compass: 94 mm
- The specifications meet the requirements defined in the following standards:
  - IEC/EN 60945:2002 + Cor1:2008
  - EN ISO 694:2001

Related topics
Technical specifications, page 31
Compass safe distance, page 45

Hull Unit compass safe distance

- **Make**: SY50 Hull Unit
- **Compass safe distance**:
  - Standard compass: 151 mm
  - Other compass: 90 mm
- The specifications meet the requirements defined in the following standards:
  - IEC/EN 60945:2002 + Cor1:2008
  - EN ISO 694:2001

Related topics

Technical specifications, page 31
Compass safe distance, page 45

Minimum display requirements

Unless specifically ordered, the SY50 system is not provided with a display. The display must then be purchased locally.

You can use more than one display on your Processor Unit depending on personal and/or operational preferences.

Note

Make sure that the chosen display meets the requirements for the SY50 system. The design and construction must allow for marine use, and the display must be able to withstand the movements and vibrations normally experienced on a vessel. Verify that you have easy access to cables and connectors, and that the display can be installed in a safe and secure way.

The minimum technical requirements for the display are:

Resolution

Minimum requirement: 1280 x 1024 pixels

The visual quality of the presentation depends on the quality of your graphic adapter and display. We recommend that you use a large display with resolution 1920 x 1080 or 1920 x 1200.

Video interface

The video interface must match the output format(s) provided by the Processor Unit. The Processor Unit may offer video output on several formats. Investigate your options before you purchase a display.

Physical screen size

The screen size depends on personal and/or operational preferences. We recommend that you use 24 inch or bigger diagonal screen size. The SY50 software supports 16:9 and 16:10 displays.

Related topics

Technical specifications, page 31

Drawing file

Topics

About the drawings in the drawing file

Relevant drawings related to the installation and/or maintenance of the SY50 system are provided for information purposes only.

Note

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.

- www.kongsberg.com/simrad

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

- www.kongsberg.com/sdc

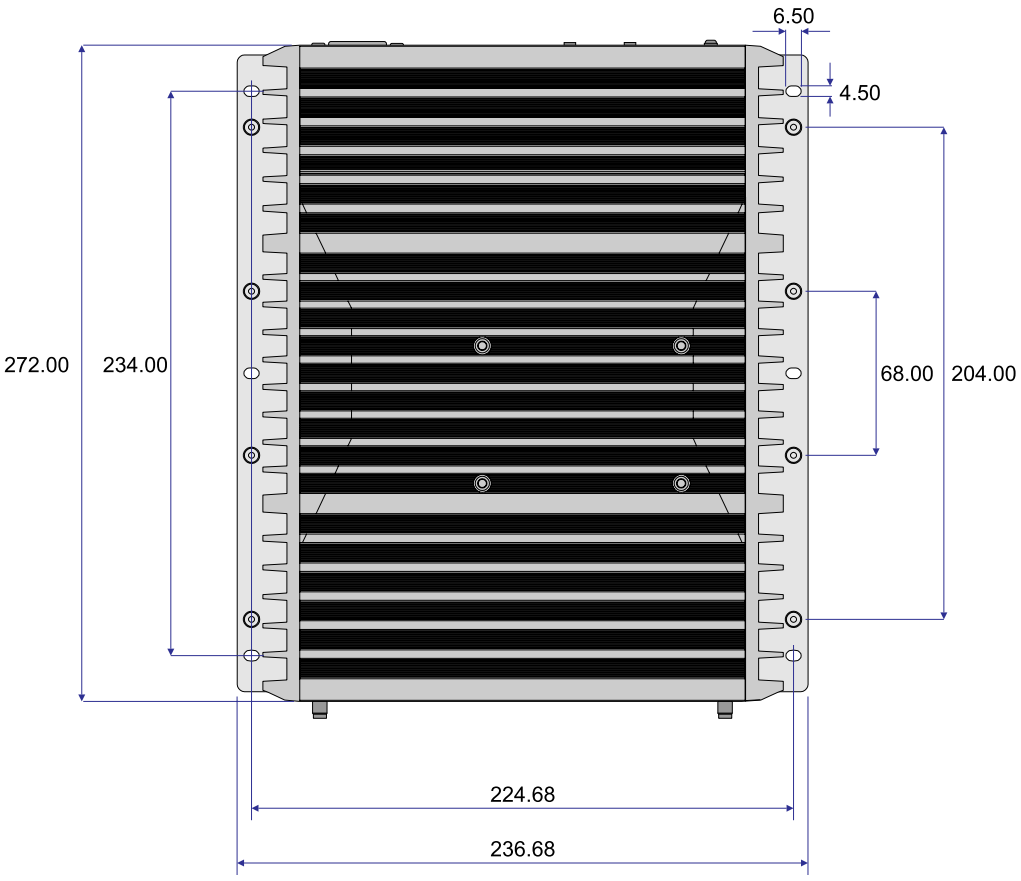
The installation shipyard must provide all necessary design and installation drawings, as well as the relevant work standards and mounting procedures.

If required, all documents provided by the shipyard for the physical installation of the SY50 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.

Nexcom NISE 3900E Outline dimensions

To obtain the source drawing, contact the manufacturer.

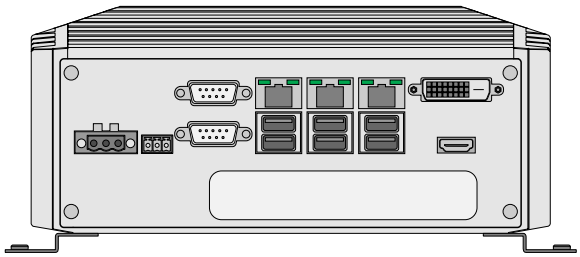
NOTE:
This is a copy of the original drawing made by the manufacturer. We are not responsible for errors. Changes made by the manufacturer may not be reflected in this copy.

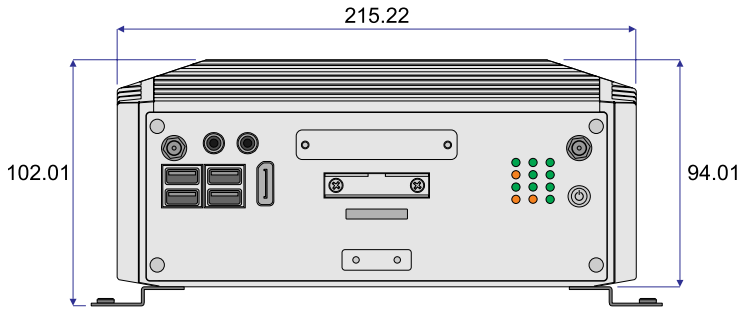


All measurements in mm.
The drawing is not to scale.

[N/A] Rev.A
CD090208_003_001

NOTE:
This is a copy of the original drawing made by the manufacturer. We are not responsible for errors. Changes made by the manufacturer may not be reflected in this copy.





All measurements in mm.
The drawing is not to scale.

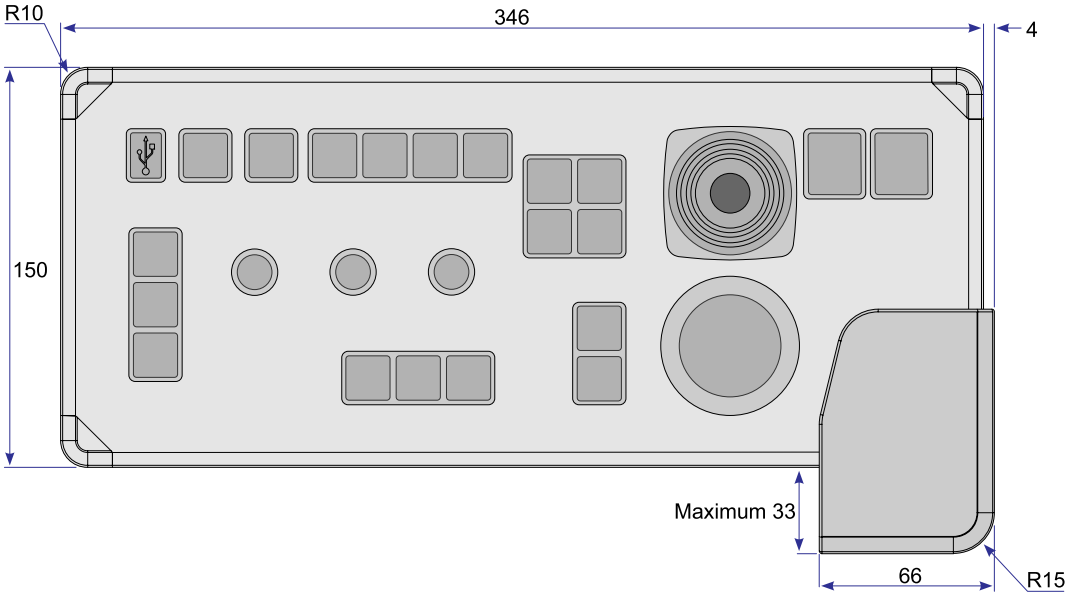
[N/A] Rev.A
CD090802_003_002

Related topics

Drawing file, page 49

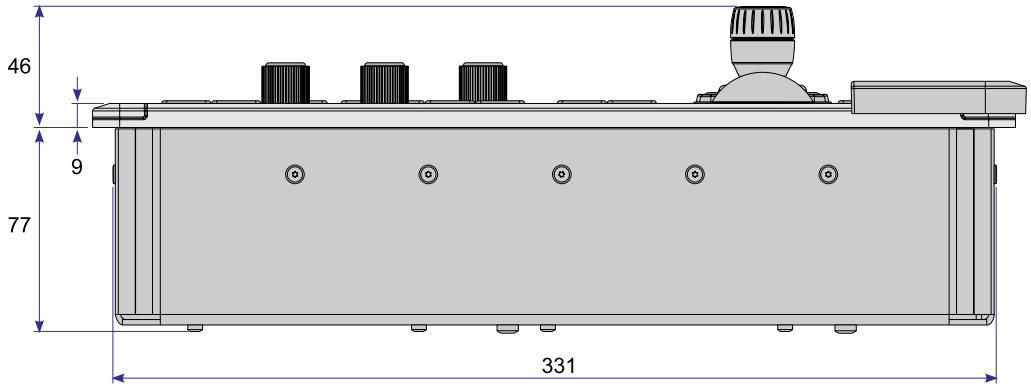
443179 Operating Panel dimensions (Mk2)

Download the source drawing from our website: https://www.kongsberg.com/sy50



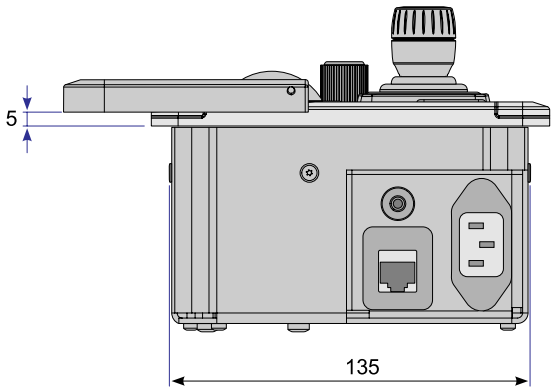
All measurements in mm.
The drawing is not to scale.
Information may be omitted. Observe the source drawing for additional details.

[443179] Rev.A
CD12_443179_001_001



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

[443179] Rev.A
CD12_443179_002_001



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

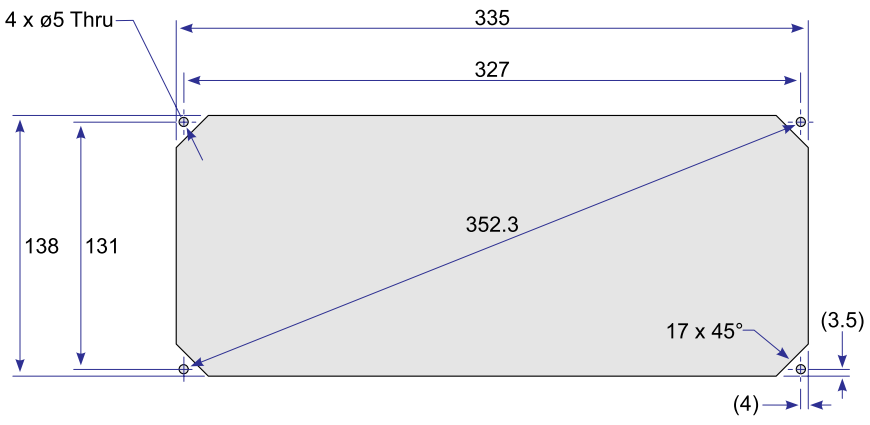
[443179] Rev.A
CD12_443179_003_001

Related topics

Drawing file, page 49

440689 Operating Panel cut-out drawing (Mk2)

Download the source drawing from our website: https://www.kongsberg.com/sy50



Minimum free space below cutout is 78 mm.

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

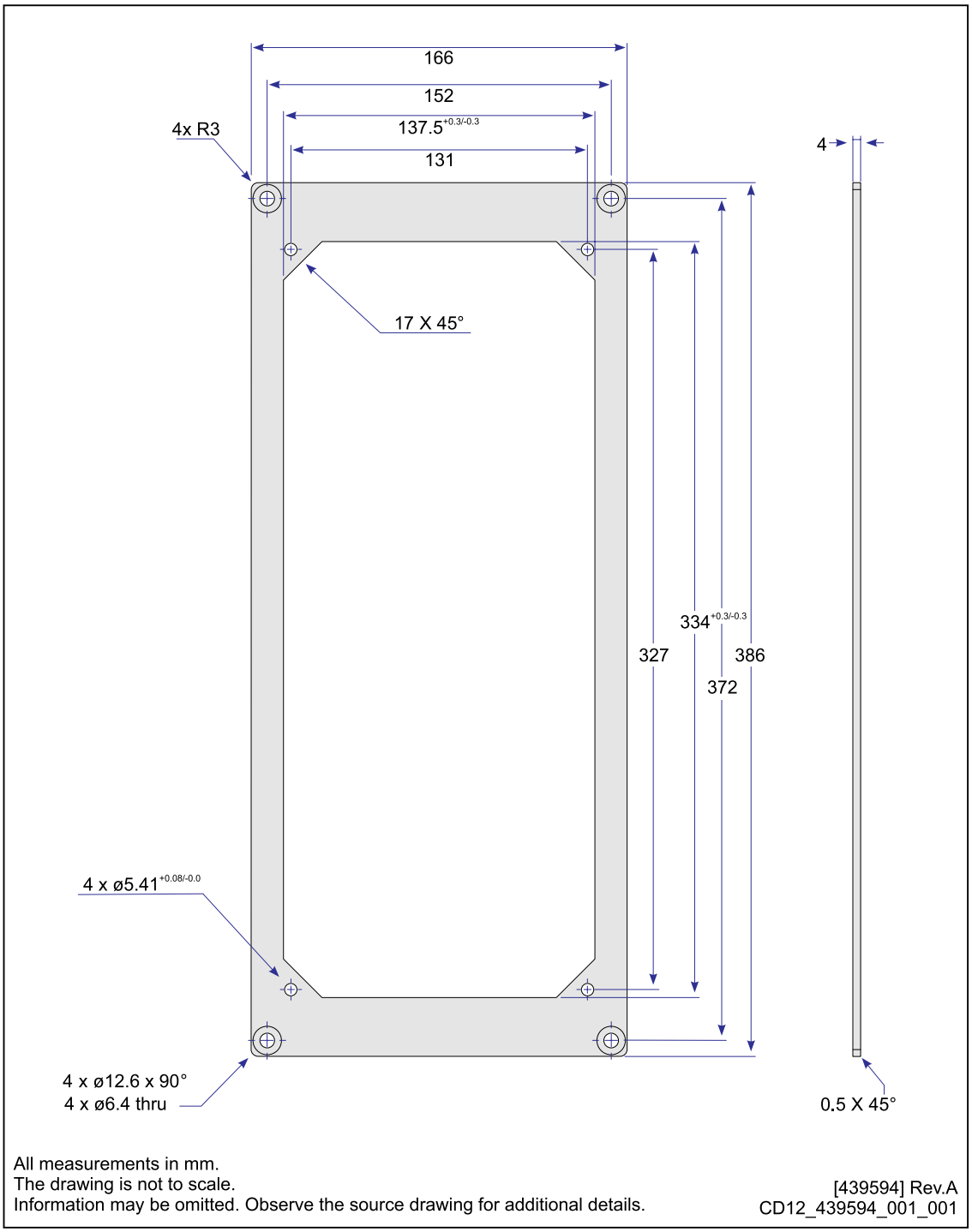
[440689] Rev.A
CD12_440689_001_001

Related topics

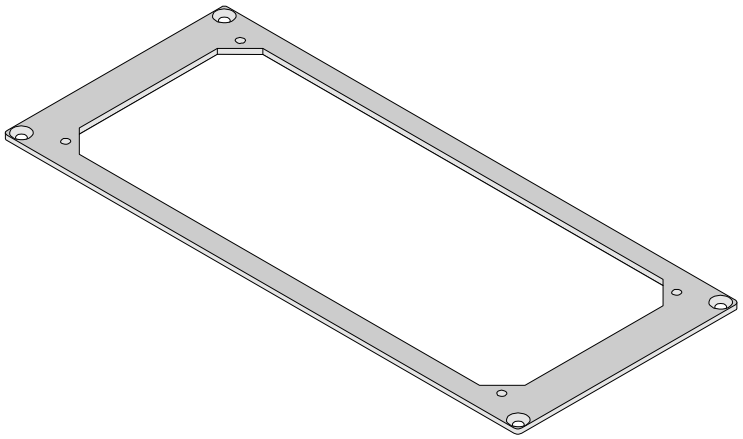
Drawing file, page 49

439594 Operating Panel adapter plate (Mk2)

Download the source drawing from our website: https://www.kongsberg.com/sy50



No sharp edges! Deburr.



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

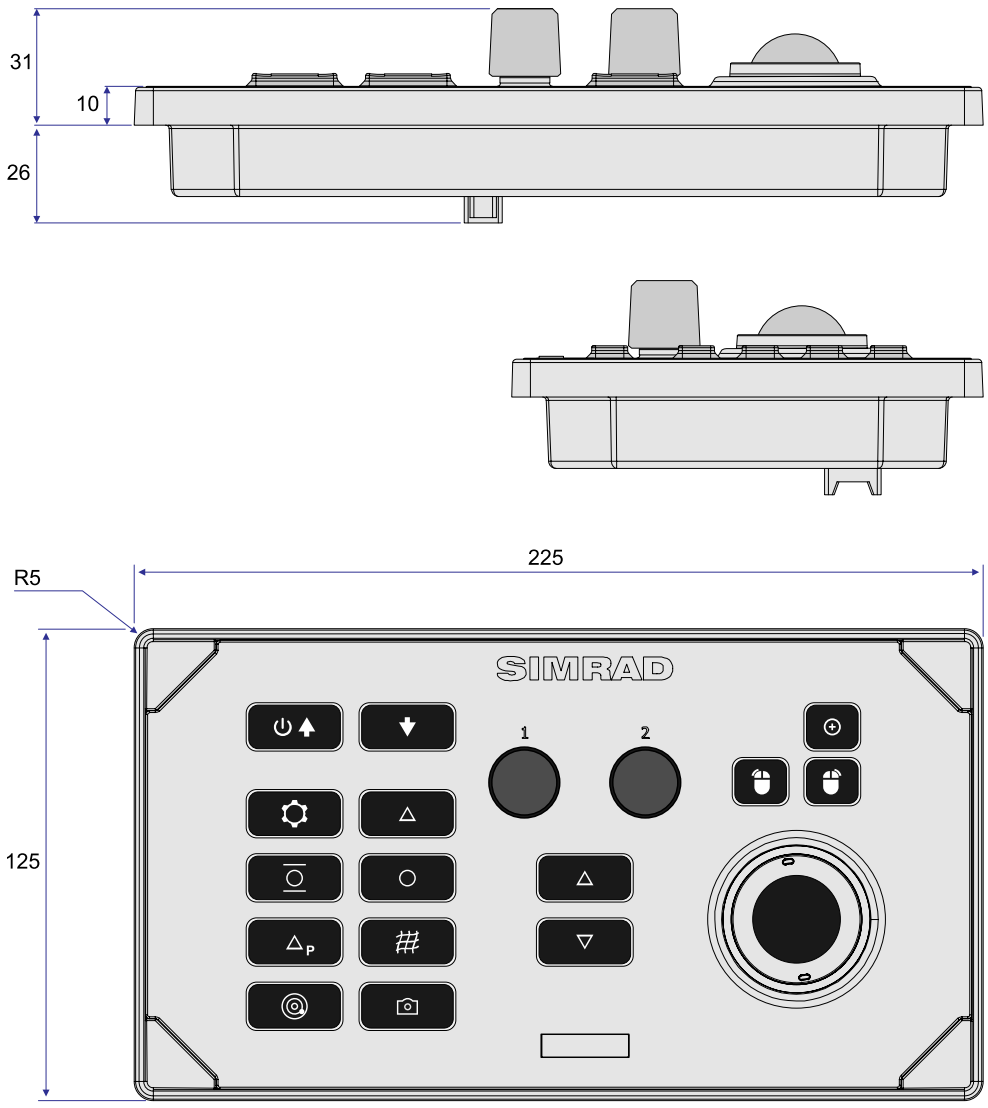
[439594] Rev.A
CD12_439594_002_001

Related topics

Drawing file, page 49

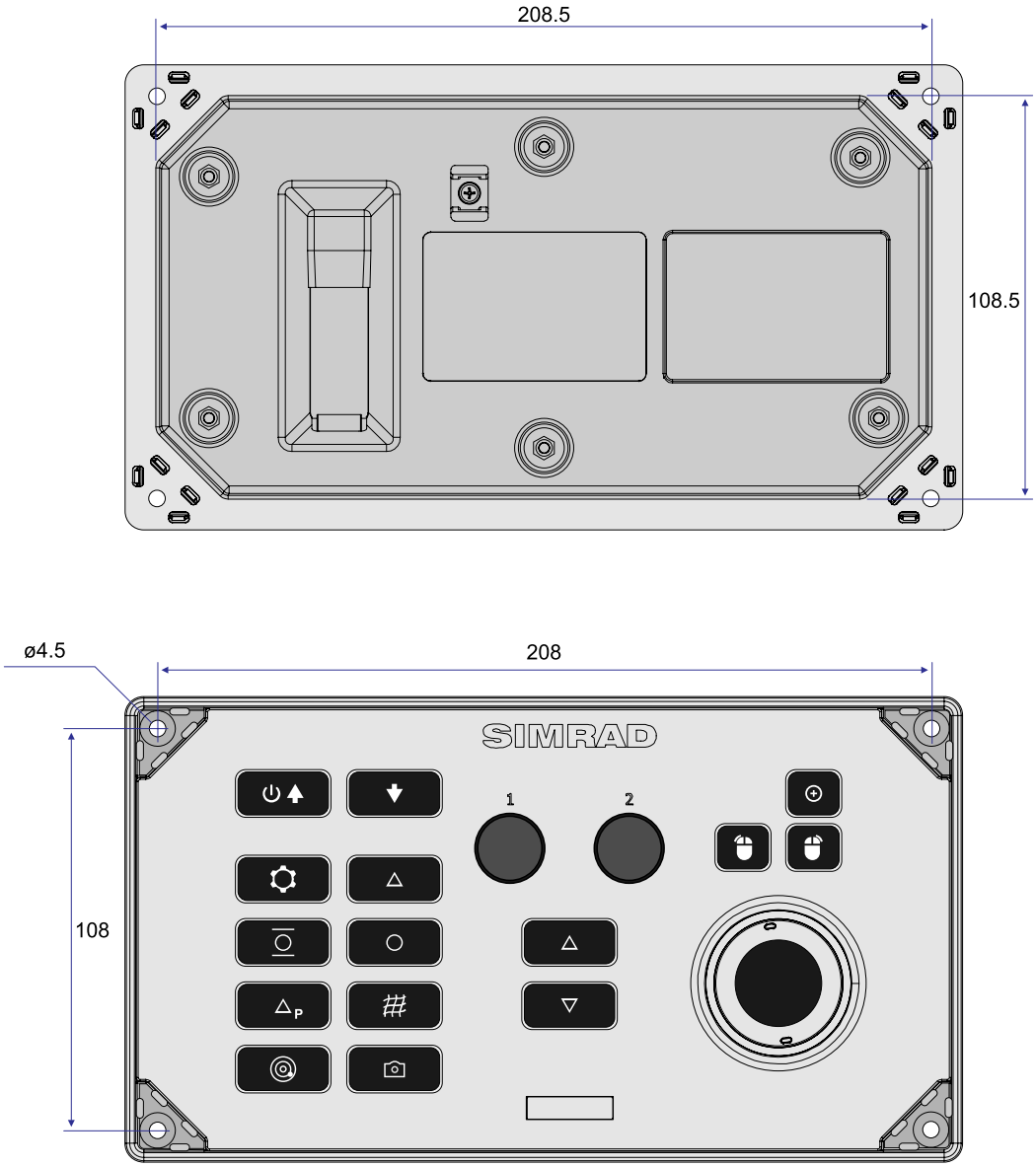
476352 Operating Panel dimensions (Mk3)

Download the source drawing from our website: https://www.kongsberg.com/sy50



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

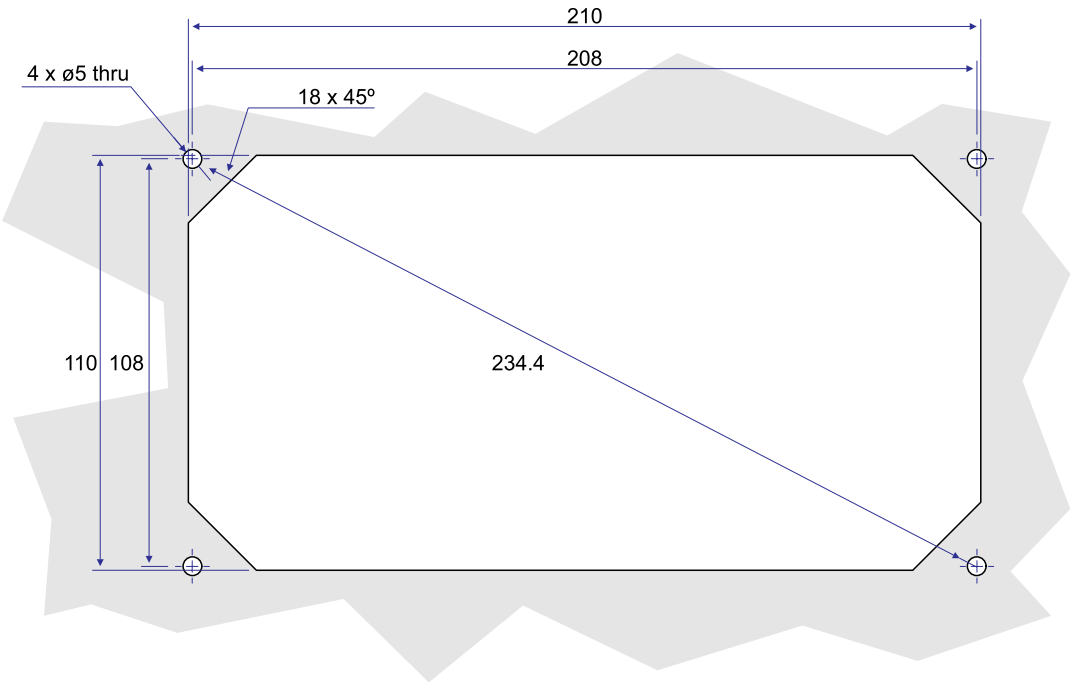
[476352] Rev.A
CD12_476352_001_001



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

[476352] Rev.A
CD12_476352_002_001

Cut-out
Minimum free space below cut-out: 30 mm



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

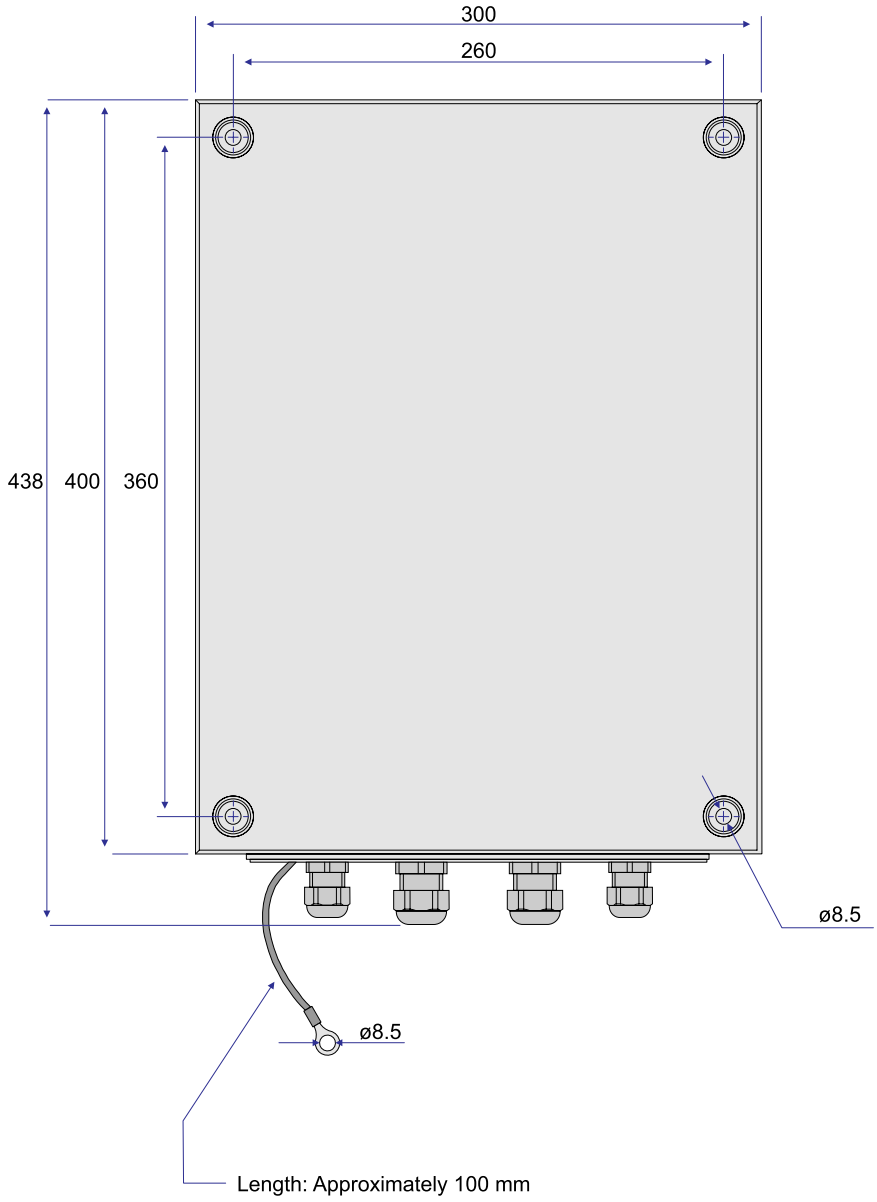
[476352] Rev.A
CD12_476352_003_001

Related topics

Drawing file, page 49

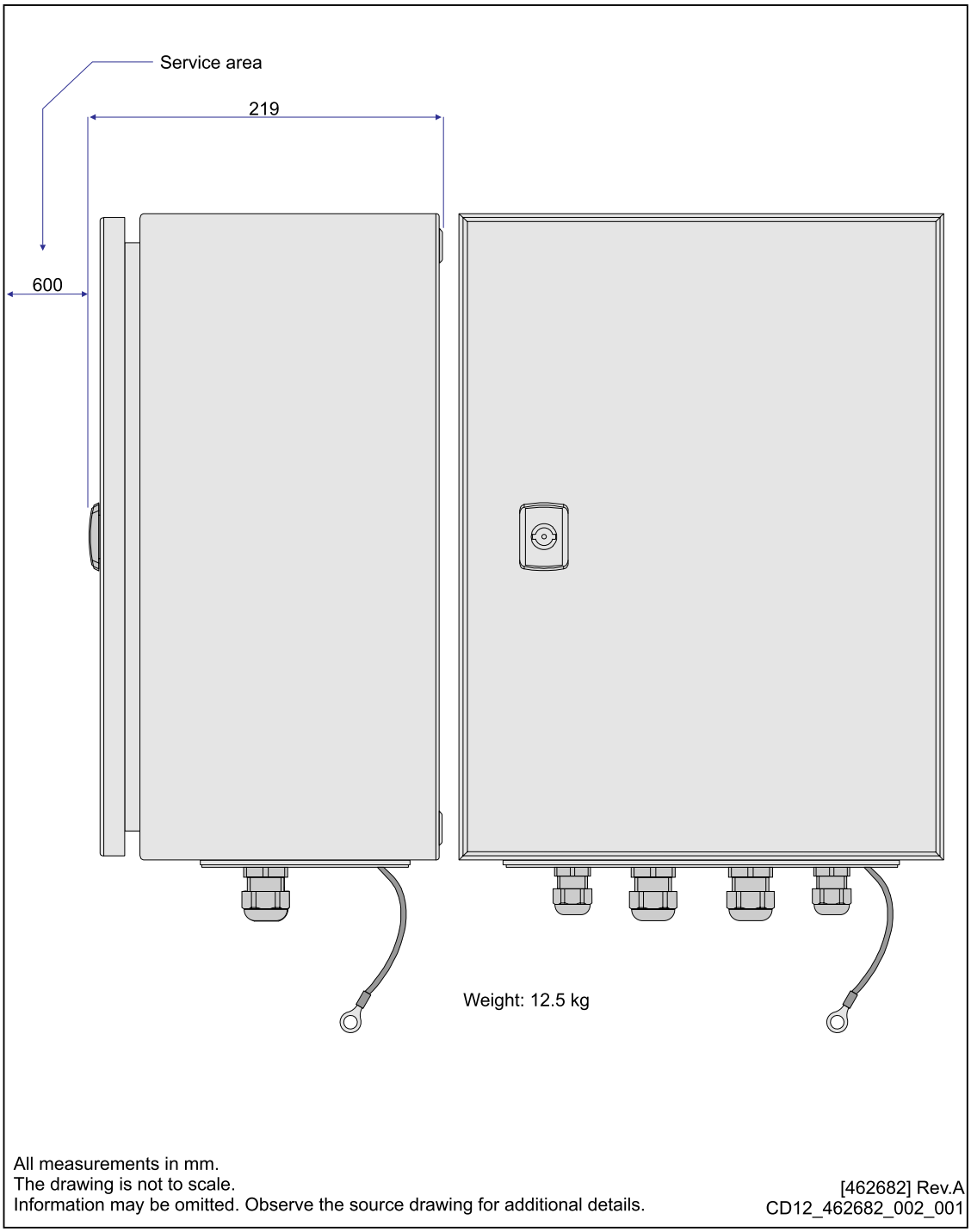
462682 Power Supply Unit dimensions

Download the source drawing from our website: https://www.kongsberg.com/sy50



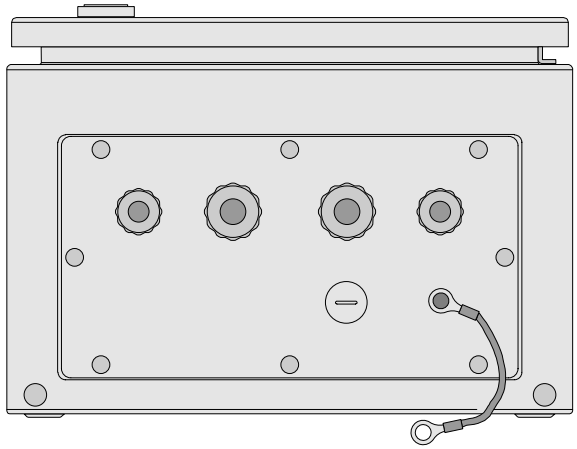
All measurements in mm.
The drawing is not to scale.
Information may be omitted. Observe the source drawing for additional details.

[462682] Rev.A
CD12_462682_001_001



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

[462682] Rev.A
CD12_462682_002_001



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

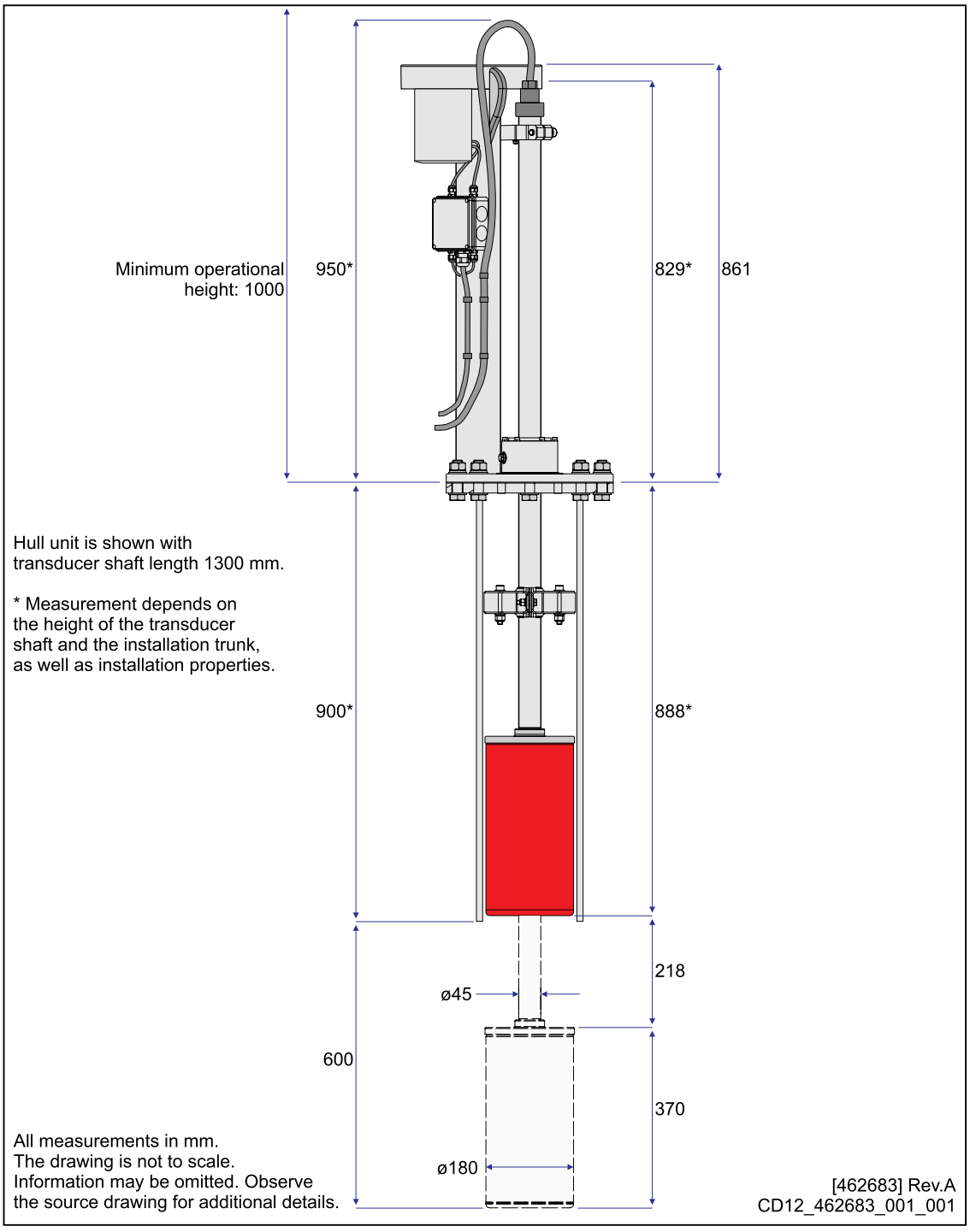
[462682] Rev.A
CD12_462682_003_001

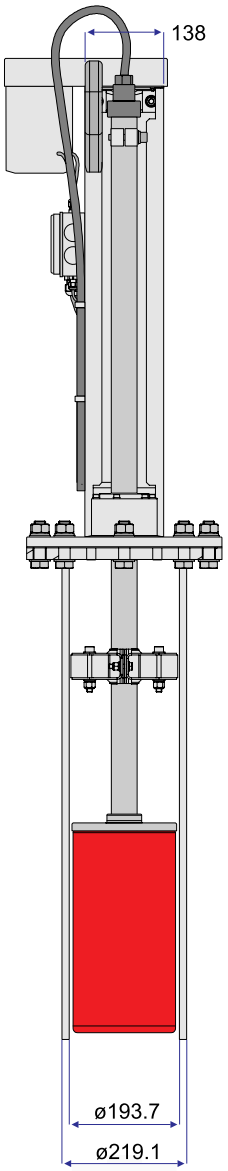
Related topics

Drawing file, page 49

462683 Hull Unit dimensions SY50

Download the source drawing from our website: https://www.kongsberg.com/sy50



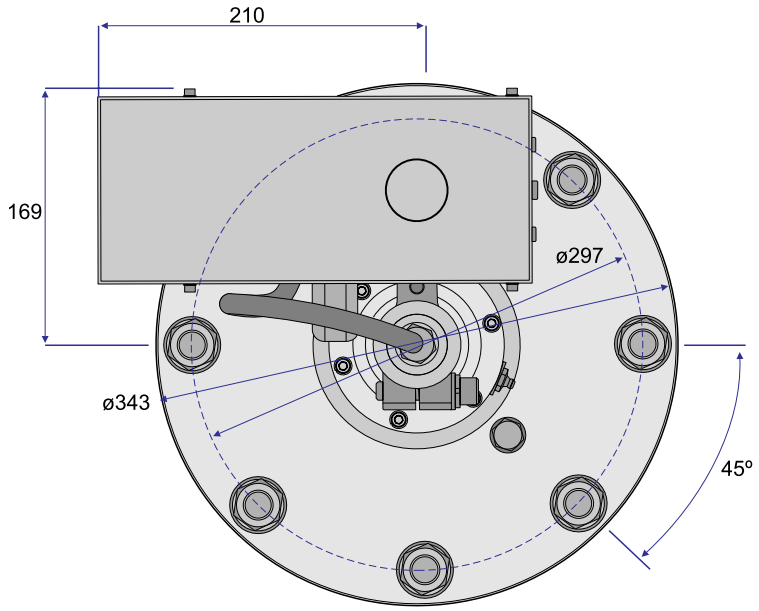


Hull unit is shown with
transducer shaft length 1300 mm.

* Measurement depends on
the height of the transducer
shaft and the installation trunk,
as well as installation properties.

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

[462683] Rev.A
CD12_462683_002_001



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

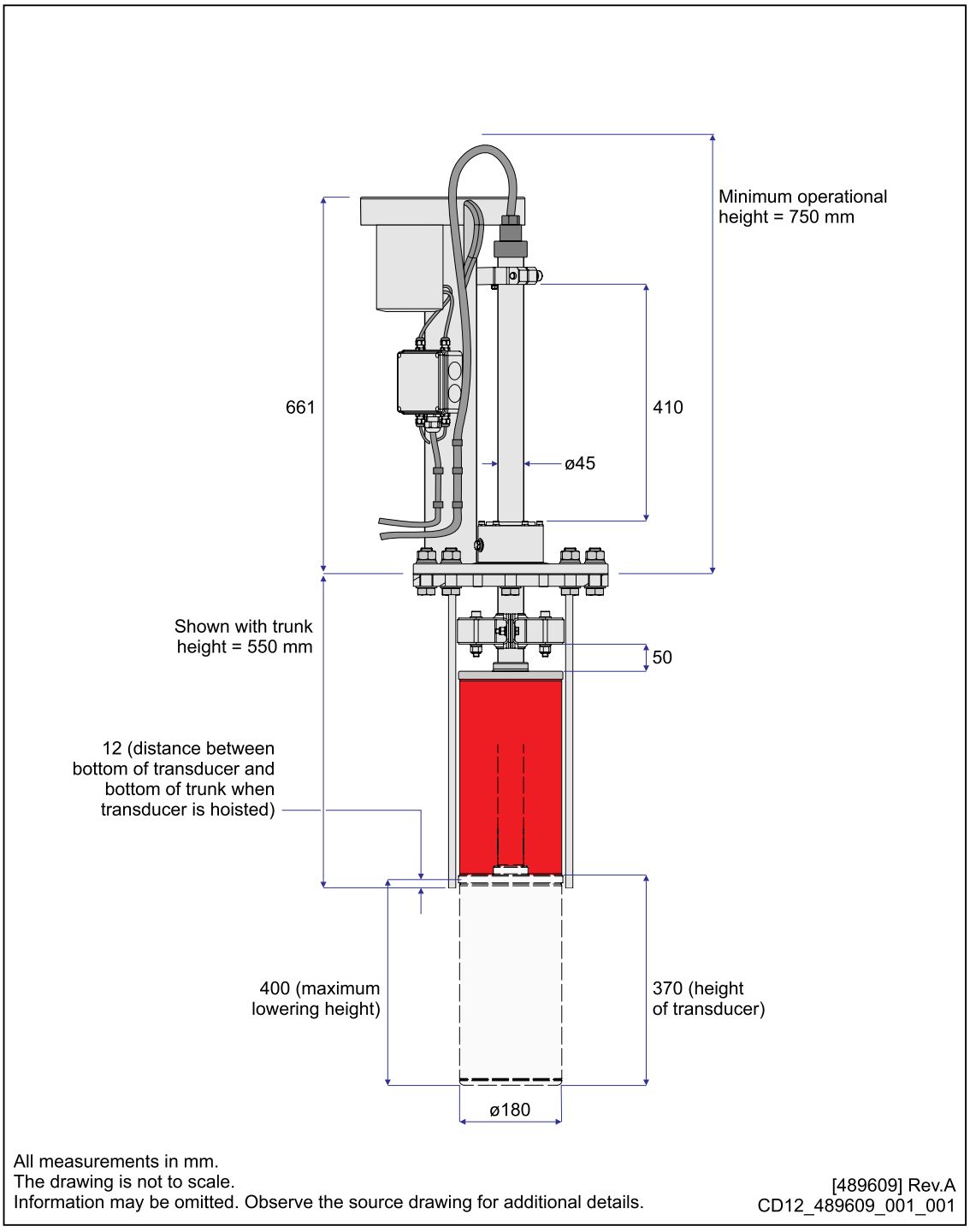
[462683] Rev.A
CD12_462683_003_001

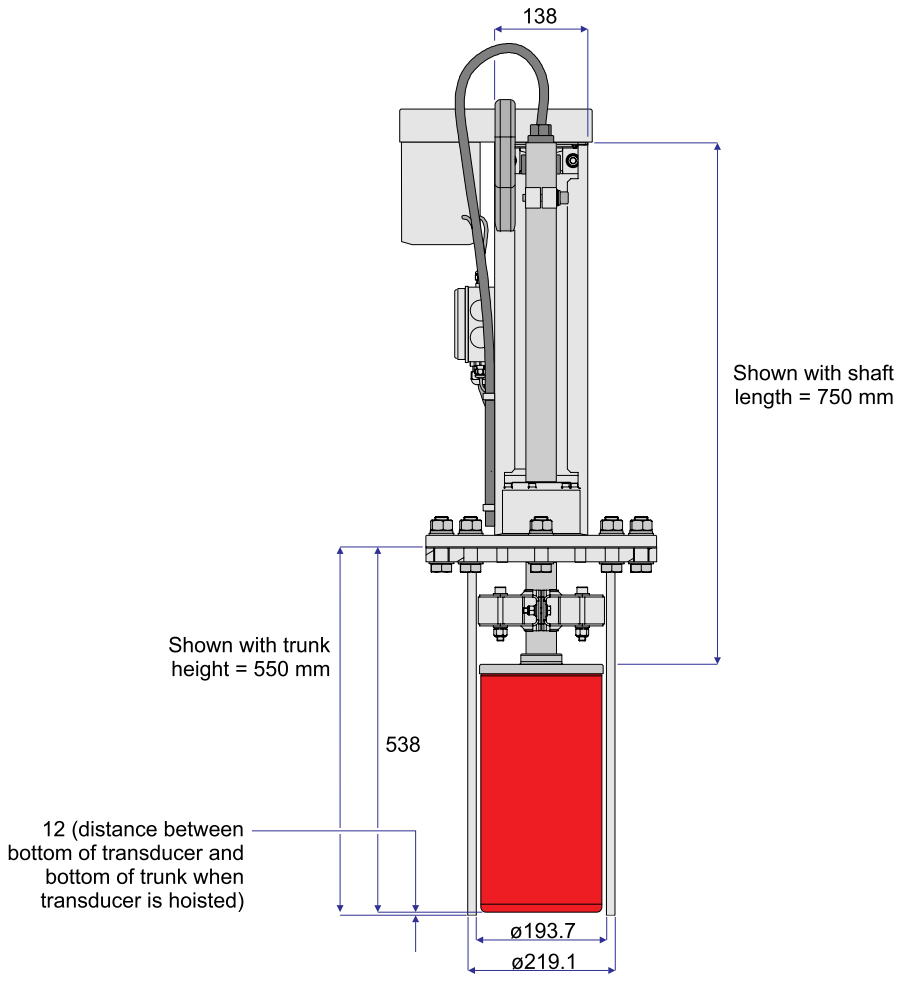
Related topics

Drawing file, page 49

489609 Hull Unit dimensions SY50C

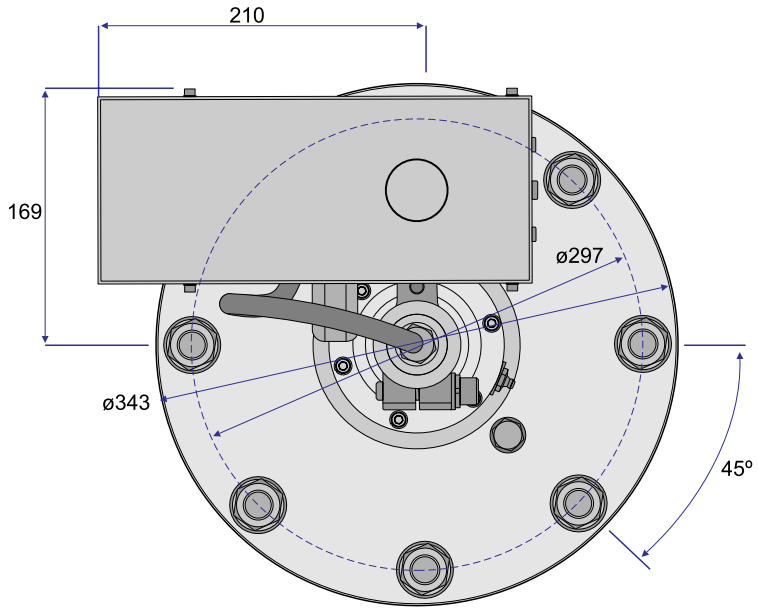
Download the source drawing from our website: https://www.kongsberg.com/sy50





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

[489609] Rev.A
CD12_489609_002_001



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

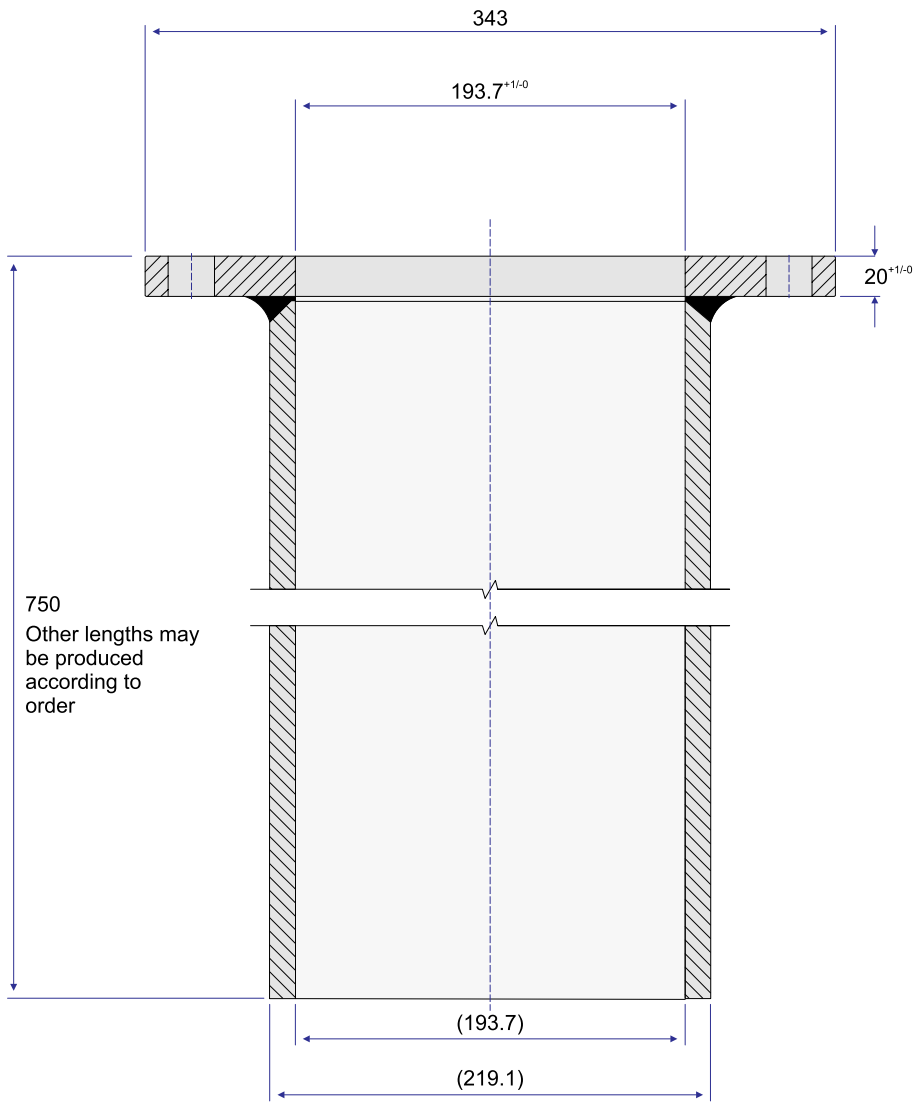
[489609] Rev.A
CD12_489609_003_001

Related topics

Drawing file, page 49

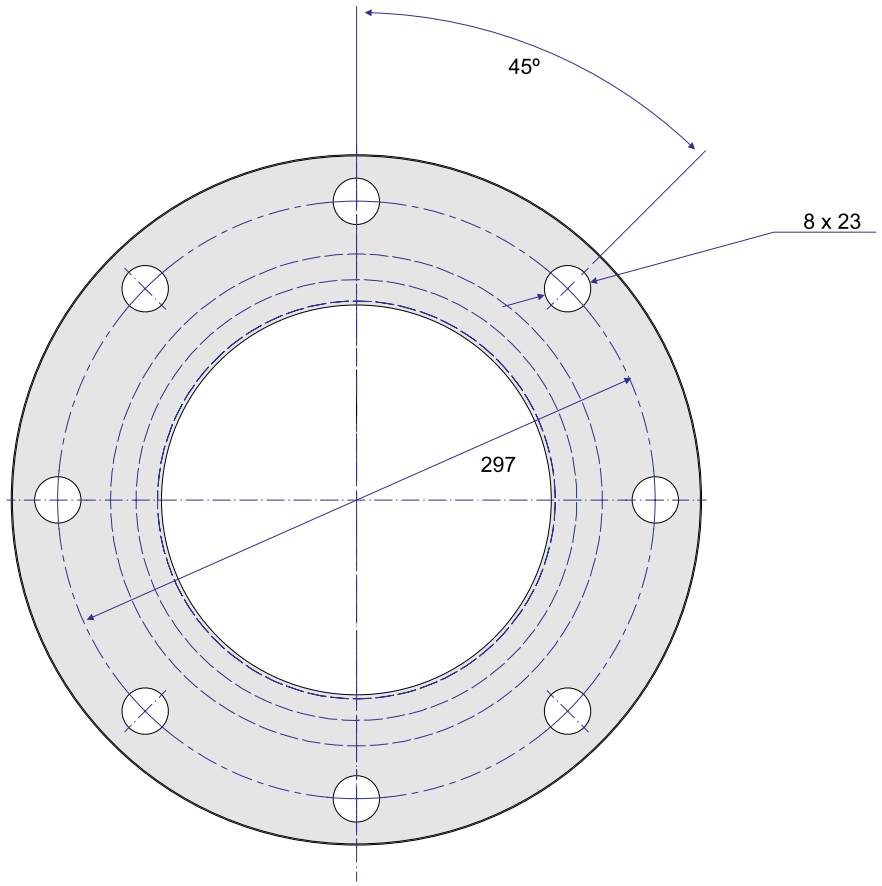
440475 Installation trunk dimensions

Download the source drawing from our website: https://www.kongsberg.com/sy50



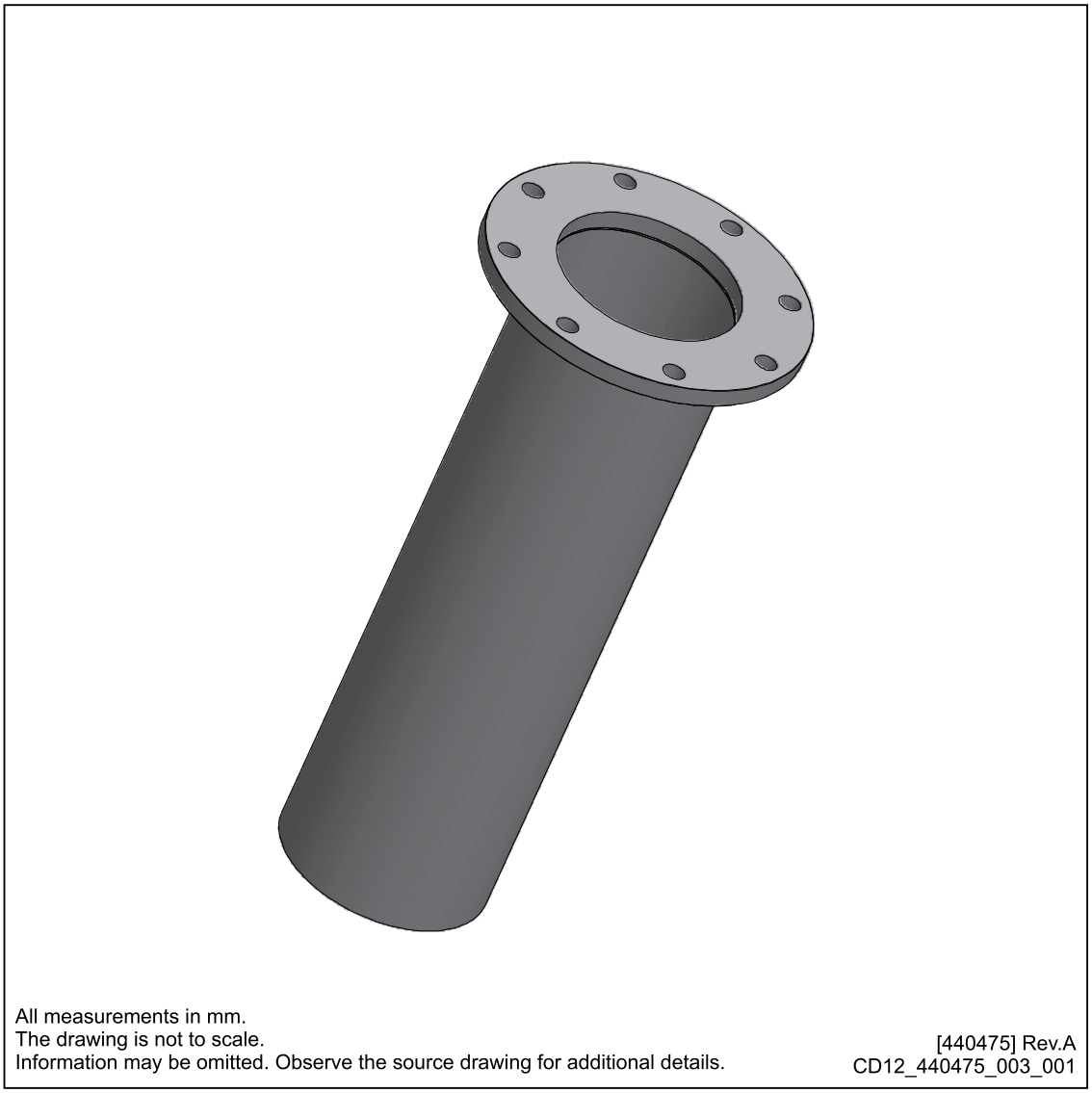
All measurements in mm.
The drawing is not to scale.
Information may be omitted. Observe the source drawing for additional details.

[440475] Rev.A
CD12_440475_001_001



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

[440475] Rev.A
CD12_440475_002_001



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

[440475] Rev.A
CD12_440475_003_001

Related topics

Drawing file, page 49

Datagram formats

The SY50 system can send and receive information to and from several different peripherals. All transmissions take place as *datagrams* with data sentences. Each datagram has a defined format and length.

The most common standard is NMEA 0183. The National Marine Electronics Association describes it as follows:

> The NMEA 0183 Interface Standard defines electrical signal requirements, data transmission protocol and time, and specific sentence formats for a 4800-baud serial data bus. Each bus can have only one talker but many listeners.
>
> *National Marine Electronics Association*

The specifications are provided in a separate publication. See our website for more information.

- www.kongsberg.com/sy50

Tip

The information is included in the SY50 context sensitive online help. Select **Help** *on the top bar.*

Index

A

C

D

N

O

P

R

S

T

U

W

Y

ISBN N/A

KONGSBERG

Kongsberg Discovery AS / Simrad
Strandpromenaden 50
P.O.Box 111
Horten
Norway

Telephone: +47 33 03 40 00

E-mail sales: simrad.sales@simrad.com
E-mail support: simrad.support@simrad.com

www.kongsberg.com/simrad

SIMRAD
By KONGSBERG