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**台灣國際造船股份有限公司**  
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# SCIENTIFIC WIDE BAND ECHO SOUNDER OPERATOR'S MANUAL (EK80)

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# Quick start guide

## Simrad EK80

### Scientific wide band echo sounder







***Simrad EK80***  
***Scientific wide band echo sounder***  
***Quick start guide***  
***Release 1.8.x***

This manual provides you with the basic information required to get you started with the Simrad EK80 Scientific wide band echo sounder.

For a more detailed description of the operation and the functionality, including all menu and parameter details, see the EK80 *Reference manual* or the on-line help.

***Caution***

---

***You must never power up the EK80 when the ship is in dry dock. The transducer will be damaged if it transmits in open air. To prevent inadvertent use of the EK80, pull out the mains plug on the Processor Unit whenever your vessel is in dry dock. Additional precautionary measures should be considered.***

---

## 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. The user 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 your local dealer. You can also contact us using the following address: [simrad.support@simrad.com](mailto:simrad.support@simrad.com). If you need information about our other products, visit <http://www.simrad.com>. On this website you will also find a list of our dealers and distributors.



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# About this manual

## **Purpose of manual**

The purpose of this quick start guide is to provide an introduction to safe and efficient use of the Simrad EK80.

A good understanding of system functions and controls is essential to fully take advantage of the functionality provided. Sea conditions vary, sometimes drastically, and it is not possible to identify settings that will provide the best data at all times. Careful study of the information in this manual is highly recommended, preferably while exploring the system's functionality.

## **Target audience**

This manual is intended for all inexperienced and new users of the EK80.

We assume that you are familiar with the basic acoustic principles of sound in water, and that you have some experience with scientific use of sonars and/or echo sounders.

## **On-line information**

All end user manuals provided for operation and installation of your Simrad EK80 can be downloaded from our website.

- <http://www.simrad.com/ek80>

Our website will also give you information about other Simrad products.

## **License information**

The EK80 is a licensed product. In order to obtain a license, contact your local dealer.

## **Software version**

This EK80 Quick start guide complies to software version 1.8.x.

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# Simrad EK80

## Topics

[Important, page 8](#)

[System description, page 9](#)

[Support information, page 10](#)

## Important

As with all other advanced instruments, there are a few important things that you must be aware of.

### **Before you switch on the EK80**

Before you power up the EK80, make sure that the transducer is submerged in water!

### *Caution*

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*You must never power up the EK80 when the ship is in dry dock. The transducer will be damaged if it transmits in open air.*

---

### **When the EK80 is not used**

When you do not use the EK80, switch off the display and the Processor Unit.

If you know that you will not use the EK80 for a long time, we recommend that you also switch off the transceiver(s). Use the on/off switch on the power supply, or disconnect the power cable.

### **When you are docking your vessel**

If the transducer is activated when out of water it may be damaged beyond repair. It is therefore very important that the EK80 system remains switched off when the vessel is in dry dock, and that no one tries to use it.

To ensure that this can not happen, disconnect the power supply cable to the either the Processor Unit or the transceiver(s) - or both! You may also remove the circuit breakers on the AC mains supply to the EK80 transceiver(s). Do this before the vessel is placed in the dry dock!

As an extra safety measure, the EK80 is by default powered up with the transmit power disabled.

### **If something breaks down**

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

- <http://www.simrad.com>

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

### **When you wish to switch off the EK80**

You must NEVER switch off the EK80 by means of the on/off switch on the Processor Unit. You must ALWAYS exit the EK80 program by clicking the **Exit** button on the top bar.

**WARNING**

***If you power down the EK80 by means of the power switch on the Processor Unit you may damage the software program and the interface parameters used to communicate with external devices.***

---

**Rules for transducer handling**

A transducer must always be handled as a delicate item. Wrongful actions may damage the transducer beyond repair.

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, sand blasting, metal tools or strong solvents to clean the transducer face.

## System description

The Simrad EK80 is the most modern “high end” split beam scientific echo sounder in the scientific market. Based on more than 60 years of research and development in close collaboration with leading marine scientists this wide band echo sounder system has succeeded the famous EK60, which became an international standard for fish stock assessment.

The Simrad EK80 is the natural choice for modern research vessels and environmental monitoring installations requiring high quality scientific data for resource management and cutting edge research.

The EK80 supports hull mounting transducers, but it is also well suited for portable use. Pulses sweeping over a wide frequency band (FM) and the traditional discrete frequencies (CW) are available. Wide band sweeps provide long range without compromising target resolution. Continuous frequency responses over a wide band improve target identification and discrimination. Split beam calibration is implemented for both FM and CW modes.

Real time echo integration and target strength analysis in an unlimited number of layers is provided as well as storage of raw data for replay or analysis in one of several post-processing software packages. Several post-processing alternatives are available for survey analysis and reporting.

By means of a common and well documented RAW data format, EK80 data can be collected and integrated across a variety of acoustic platforms.

The Simrad EK80 can operate a large number of frequencies simultaneously ranging from 10 to 500 kHz. A wide selection of high quality accurate transducers is available.

The EK80 uses Microsoft® Windows® operating system. It can operate with single and/or split beam transducers, and provides you with a dedicated built-in application for calibration. The EK80 is specifically suited for permanent installation onboard a research vessel. It is still compact and a natural choice for portable use.

The Simrad EK80 is well suited for a number of applications:

- Assessment of fish biomass and distribution
- Species identification and discrimination
- Plankton research
- Habitat mapping
- Behavioral studies
- Environmental research
- Oil and gas detection

The echo sounder system is modular, and you can assemble any combinations of transceivers and transducers to fit your research purposes. In a typical configuration, the EK80 will comprise:

- A Display
- B One Processor Unit
- C An Ethernet switch
- D One or more transceiver units
- E One or more single- or split beam transducers

The EK80 can work with the Simrad General Purpose Transceiver (GPT), the Wide Band Transceiver (WBT) and the EK15 Transceiver.

## Support information

If you need technical support for your Simrad EK80 you must contact your local dealer, or one of our support departments. A list of all our offices and dealers is provided on our website. You can also contact our main support office in Norway.

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# Getting started

## Topics

[Read this first, page 14](#)

[Powering the EK80 on and off, page 17](#)

[Starting normal operation, page 20](#)

[Using the key functionality, page 31](#)

[User interface, page 37](#)

[Setting up the EK80 Scientific wide band echo sounder for the first time, page 45](#)

[Assembling a portable system, page 57](#)

## Read this first

"Getting started" is all about powering up the EK80 Scientific wide band echo sounder for the first time: either because the EK80 has just been unpacked or installed, or because you are a first time user on an existing system.

The following user scenarios have been defined:

- 1 New installation
- 2 New user
- 3 New portable system

### Caution

---

*You must never power up the EK80 when the ship is in dry dock. The transducer will be damaged if it transmits in open air. To prevent inadvertent use of the EK80, pull out the mains plug on the Processor Unit whenever your vessel is in dry dock. Additional precautionary measures should be considered.*

---

### Topics

[New installation, page 14](#)

[New user, page 15](#)

[New portable system, page 16](#)

## New installation

If this is a new system that is about to be put to use, you must first install the software, and then the license key(s). Following this you must set up the transceiver(s) with their respective transducer(s).

### Note

---

*We assume that all the hardware units - computer, transceiver(s) and transducers(s) - have been previously installed. This is described in the EK80 Installation manual.*

---

The following software tasks are relevant. Some of them may have been done during the installation.

- 1 Power up the Processor Unit.
- 2 Install the EK80 software.
- 3 Set up the Ethernet adapter on the Processor Unit for communication with the Wide Band Transceiver (WBT).
- 4 Start the EK80 program, and insert the license key(s).

- 5 If relevant, adjust the screen resolution.
- 6 Select which transducer(s) you wish to use.
- 7 Configure each Wide Band Transceiver (WBT).
- 8 Start "pinging".
- 9 Investigate the features and functionality offered by the EK80.  
See the basic operational procedures in this chapter.  
For more detailed information, consult the EK80 *Reference manual*.

---

**Tip**

*All information related to EK80 operation is available in the context sensitive on-line help.*

---

## New user

If you are a new user about to operate an existing EK80 Scientific wide band echo sounder, you must simply power it up. Then, observe the basic information and operational procedures in this chapter to get acquainted with the system.

---

**Note**

*We assume that all the hardware units - computer, transceiver(s) and transducers(s) - have been previously installed. This is described in the EK80 Installation manual.*

---

The following software tasks are relevant.

- 1 Power up the Processor Unit.
- 2 Start the EK80 program.
- 3 Verify that the transducer(s) and the transceiver(s) are all set up and configured.
- 4 Start "pinging".
- 5 Investigate the features and functionality offered by the EK80.  
See the basic operational procedures in this chapter.  
For more detailed information, consult the EK80 *Reference manual*.

---

**Tip**

*All information related to EK80 operation is available in the context sensitive on-line help.*

---

## New portable system

If this is a new portable system that is about to be put to use, you must first unpack the main units and connect them together. After this you must install the EK80 software, and then the license key(s). Finally, you must set up the transceiver(s) with their respective transducer(s).

The following tasks are relevant.

- 1 Unpack the various units that comprise the EK80 system: Processor Unit (computer), transceiver(s) and transducer(s).
- 2 Connect the units together as indicated in the system diagram.
- 3 Connect power from AC mains or battery.
- 4 Power up the Processor Unit.
- 5 Install the EK80 software.
- 6 Set up the Ethernet adapter on the Processor Unit for communication with the Wide Band Transceiver (WBT).
- 7 Start the EK80 program, and insert the license key(s).
- 8 If relevant, adjust the screen resolution.
- 9 Select which transducer(s) you wish to use.
- 10 Configure each Wide Band Transceiver (WBT).
- 11 Start "pinging".
- 12 Investigate the features and functionality offered by the EK80.

See the basic operational procedures in this chapter.

For more detailed information, consult the EK80 *Reference manual*.

### Tip

---

*All information related to EK80 operation is available in the context sensitive on-line help.*

---

# Powering the EK80 on and off

## Topics

[Powering up the EK80, page 17](#)

[Powering down the EK80, page 19](#)

## Powering up the EK80

In order to use the EK80, you must first switch it on. You must power up the display, the Processor Unit, the transceiver(s), and the Ethernet switch (if applicable). After this you can start the EK80 program.

## Prerequisites

This procedure assumes that you have connected one or more transceivers to the EK80 Processor Unit.

## Context

The EK80 software is not automatically started when the Processor Unit is powered up. Once the operating system has started, you must click the icon on the desktop.

When the EK80 is powered up and set to *Normal* mode, it will use the transducers to transmit acoustic pulses into the water.

## Caution

---

*You must never power up the EK80 when the ship is in dry dock. The transducer will be damaged if it transmits in open air.*

---

## Procedure

- 1 Verify that the EK80 transceiver(s) are switched on.  
The Wide Band Transceiver (WBT) power supply is fitted with an on/off switch.
- 2 Power up the display(s).  
If required, refer to the instructions provided by the display manufacturer.
- 3 Power up the Processor Unit.  
If required, refer to the instructions provided by the computer manufacturer.  
Wait for the operating system to start up.
- 4 Double-click the EK80 icon on the Processor Unit desktop to start the program.  
Wait while the EK80 program starts.

- 5 Choose user settings.

During the program load, a dialog box appears to let you choose from the current user settings available on the EK80. The dialog box is only visible a few seconds. You do not need to make a choice here. You can select your predefined user setting at any time by means of the **User Settings** dialog box on the **Main** menu.

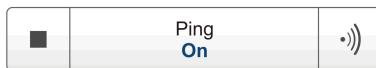
- 6 Once the EK80 program has started, observe that the presentation fills the entire screen.

- 7 For normal operation, select *Normal* mode using the **Operation** button on the **Operation** menu.



- 8 Set **Ping** to *On* to activate "pinging".

When the EK80 program has started, the icon for the **Operation** menu will flash to remind you that "pinging" is disabled. This is for safety reasons. You must manually start "pinging" by means of the **Ping** button on the **Operation** menu.



- 9 Click **Ping Mode**, and set it to *Interval*.

- 10 Click [+] or [-] on **Ping Interval** to select a suitable fixed time between each "ping".



- 11 Observe that the EK80 starts.

## Result

The EK80 starts up using the same operational parameters as the last time you used it. If these parameters are acceptable, continue operation. If you wish to alter basic operational parameters, see the relevant procedures.

## Further requirements

When the EK80 starts, it is very important that it detects the bottom correctly. In most cases this will take place automatically. However, we have experienced that large schools of fish or difficult bottom conditions have deceived the EK80 to display the wrong depth. In these cases the sounder may display the bottom at 0,0 meters at the top of the fish school. In order to aid the EK80 to locate the correct depth, you must adjust to bottom maximum and minimum ranges according to the actual bottom depth.



## Powering down the EK80

You must NEVER switch off the EK80 by means of the on/off switch on the Processor Unit. You must ALWAYS exit the EK80 program by clicking the **Exit** button on the top bar.

### Context

When you do not use the EK80, switch off the display and the Processor Unit.

If you know that you will not use the EK80 for a long time, we recommend that you also switch off the transceiver(s). Use the on/off switch on the power supply, or disconnect the power cable.

### Procedure

- 1 Click the **Exit** button on the top bar.

Observe that the EK80 program closes down.

- 2 If the Processor Unit does not switch itself off automatically, use the functionality provided by the operating system to switch it off manually.



- 3 Switch off the display(s).

If required, refer to the instructions provided by the display manufacturer.

- 4 Switch off the transceiver(s).

The transceiver is not provided with an on/off switch.

Unless a dedicated solution has been provided during the installation to facilitate power on/off, you can leave the transceiver(s) on. However, if you know that the EK80 is not to be used for a longer period of time, disconnect the power to the transceiver(s).

# Starting normal operation

## Topics

[Introduction to the basic procedures, page 20](#)

[Selecting \*Normal\* operational mode, page 20](#)

[Checking the transceiver and transducer settings, page 21](#)

[Selecting which echogram type to use, page 23](#)

[Adjusting the echo sensitivity, page 25](#)

[Choosing Range and Start Range, page 26](#)

[Choosing echogram colours, page 27](#)

[Checking the bottom detection settings, page 29](#)

## Introduction to the basic procedures

Once you have powered up the complete EK80 system, and started the EK80 program, you are ready to start the actual operation.

Observe these brief procedures to familiarize yourself with the basic operation.

When started up, the EK80 will automatically apply its previous setup parameters. These procedures are partly provided to get you acquainted with the basic functionality provided by the EK80, and partly to set up the system for normal use. If you already know the EK80, or the current operational parameters are acceptable, you may not need to do any of these procedures.

### Note

---

*The procedures assume that the EK80 has at least one frequency channel (transceiver and transducer) readily connected. If this is not the case, observe the relevant installation procedures.*

---

## Selecting *Normal* operational mode

In order to start transmitting ("pinging") you must set the EK80 to *Normal* operational mode.

### Context

The **Operation** function controls the operational mode of the EK80. You can set it to *Normal*, *Replay*, or *Inactive*.

**WARNING**

**You must never start "pinging" when your vessel is in dry dock. Transmitting in air will damage the transducer beyond repair.**

Once started, the EK80 transmissions are controlled by the **Ping Mode** and **Ping Interval** functions, as well as the settings in the **Normal Operation** dialog box.

**Procedure**

- 1 Click the **Operation** icon.

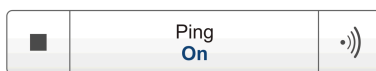
This icon is located under the **Main** menu. It is used to open the **Operation** menu.

- 2 Click **Operation**, and set it to *Normal*.



The system is now ready for transmission.

- 3 Click **Ping**, and set it to *On*.



- 4 Click **Ping Mode**, and set it to *Interval*.

- 5 Click [+] or [-] on **Ping Interval** to select a suitable fixed time between each "ping".

**Result**

The EK80 is now transmitting acoustic pulses into the water.

**Further requirements**

When the EK80 starts, it is very important that it detects the bottom correctly. In most cases this will take place automatically. However, we have experienced that large schools of fish or difficult bottom conditions have deceived the EK80 to display the wrong depth. In these cases the sounder may display the bottom at 0,0 meters at the top of the fish school. In order to aid the EK80 to locate the correct depth, you must adjust to bottom maximum and minimum ranges according to the actual bottom depth.

**Checking the transceiver and transducer settings**

The EK80 will only operate properly when connected to the correct transceiver(s) and transducer(s).

**Prerequisites**

This procedure assumes that the EK80 has been powered up.

## Procedure

1 Verify that the currently connected transducer(s) are shown as tabs on the status bar at the bottom of the EK80 presentation.

2 Observe the **Main** menu.

Its default location is on the right side of the EK80 presentation.

3 Click the **Setup** icon.

This icon is located under the **Main** menu. It is used to open the **Setup** menu.

4 Click the **Installation** button.



a Observe that the **Installation** dialog box opens.

b On the left side, click **Transceiver**.

c Observe that the **Transceiver** page opens.

5 Check that all applicable transceivers and transducers are connected and operational.

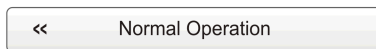
For each transceiver, this is indicated by the green label with text "Installed".

6 Click **OK** to save the chosen parameters and close the dialog box.

7 Click the **Operation** icon.

This icon is located under the **Main** menu. It is used to open the **Operation** menu.

8 Click **Normal Operation**.



Observe that the **Normal Operation** dialog box opens.

9 For each frequency channel (transceiver/transducer combination):

a Set **Mode** to *Active*.

b Set **Pulse Duration** to your chosen value.

c Set **Power** to the correct power level for the transducer.

d Check that the **Depth** value is set correctly.

This is the installation depth of the transducer; the vertical location of the transducer face relative to the water surface.

In order to measure correct water depth, the EK80 needs to know the vertical distance between the vessel's water line and the acoustic face of each transducer. The depth of each individual transducer must be defined manually. Enter the depth as a positive number.

If the displacement of your vessel changes considerably, you may consider changing this parameter often.

10 Click **OK** to save the chosen parameters and close the dialog box.

## Selecting which echogram type to use

Three different echogram types may be presented by the EK80. For each channel you must choose to use one of them.

### Context

The following echogram types are available.

- **Surface echogram**

The *Surface echogram* shows the echoes starting from the sea surface and down. The sea surface is used as depth reference. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu.

In the surface echogram, all calculations are made from the sea surface and down to the detected bottom. Use this echogram type to obtain correct calculation of the biomass, as well as valid data for the information offered in the *Target Strength Histogram* information pane.

- **Bottom echogram**

The *Bottom echogram* shows the echoes over and below the bottom contour. The bottom is used as depth reference, and is therefore shown as a flat contour. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu.

The echogram is only drawn for pings that have a successful bottom detection.

- **Pelagic echogram**

The *Pelagic echogram* shows you a selected part of the water column. The echoes start from any start depth below the sea surface, which is used as depth reference. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu. The bottom contour shall not be visible in the echogram.

In the pelagic echogram the calculations will disregard any bottom detection. All calculations are thus based on the entire echogram shown in the view. If the bottom echo is present in the echogram, the biomass calculation will be wrong.

- **Trawl echogram**

The *Trawl echogram* covers the vertical opening of the trawl with reference to the depth of the headrope. In addition to the trawl opening, the echogram covers a certain range over and under the trawl opening. This range is set by adjusting the **Start Range** and **Range** settings on the **Main** menu.

The echogram is only drawn when trawl position information is available.

### Procedure

- 1 Click once in the echogram view that you wish to change.

This will make the view "active". A thick border is placed on the selected view to visualize this.

- 2 Click the **Active** icon.

This icon is located under the **Main** menu. It is used to open the **Active** menu.

- 3 Click **Echogram**.



Observe that the **Echogram** dialog box opens.

- 4 In the **Echogram** dialog box, click the **Echogram** tab.
- 5 Select the echogram type you wish to apply to the chosen view.
- 6 If you wish to use a sidescan echogram, specify the sidescan options by defining which side of the vessel each transducer is located.
- 7 Apply the change(s) you have made.
  - a Click **Apply** if you wish to use apply the change only to the currently active echogram view.
  - b Click **Apply to all** if you wish to use apply the change to all the echogram views.
- 8 Click **OK** to save the chosen parameters and close the dialog box.

### **Further requirements**

Set up the **Range** and **Start Range** values you wish to use for the chosen echogram(s).

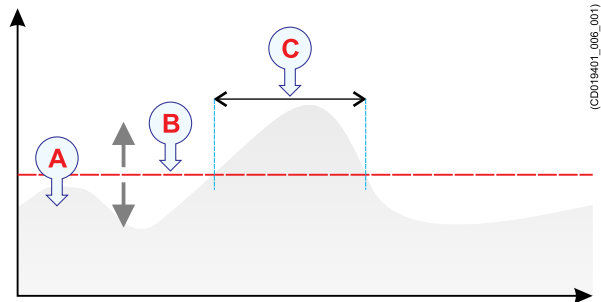
## Adjusting the echo sensitivity

On the EK80 you do not change the actual gain in the receiver, but the minimum level of the colour scale. When the dB level is decreased, the weaker echoes will start to appear in the echogram. This does not happen because the signal amplification is increased, but because the visual sensitivity has been improved.

### Context

There are two Minimum Level buttons, one for each TVG setting ( $20 \log R$  and  $40 \log R$ ). Each of these will only work on echograms with the same TVG setting.

By default, the Minimum Level setting applies only to the currently selected echogram (identified with a thick border). Several echogram types are available, these are selected in the **Echogram** dialog box. If you wish to adjust the Minimum Level on all similar echograms in your view, click to select **Apply to all**.



*The echo strength (A) will vary with time. The Minimum Level (B) may be adjusted up or down. Reducing the level will increase the sensitivity. Only echoes over the Minimum Level will be shown in the echogram (C).*

### Procedure

- 1 Observe the **Minimum Level** button on the **Main** menu.



- 2 **Method 1**
  - a Click [+] or [-] to choose the level.
- 3 **Method 2**
  - a Click the middle of the **Minimum Level** button, hold the mouse button depressed.
  - b Drag the cursor sideways to increase or decrease the level.
- 4 **Method 3**
  - a Click the middle of the **Minimum Level** button to open the submenu.
  - b Type the requested level.

### Note

*You can only use this method if you have computer keyboard connected to your Processor Unit.*



## Choosing Range and Start Range

In all echograms, the start depth of the echogram is defined by the **Start Range** depth value. The range starting from this chosen start depth is defined by the **Range** value.

### Context

The range setting defines how "deep" you wish the EK80 to detect echoes, that is the vertical distance between the "top" and the "bottom" of the echogram. The **Range** setting specifies this "bottom" depth, while the **Start Range** setting specifies the "top" depth.

- **Surface echogram**

The *Surface echogram* shows the echoes starting from the sea surface and down. The sea surface is used as depth reference. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu.

In the surface echogram, all calculations are made from the sea surface and down to the detected bottom. Use this echogram type to obtain correct calculation of the biomass, as well as valid data for the information offered in the *Target Strength Histogram* information pane.

- **Bottom echogram**

The *Bottom echogram* shows the echoes over and below the bottom contour. The bottom is used as depth reference, and is therefore shown as a flat contour. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu.

The echogram is only drawn for pings that have a successful bottom detection.

- **Pelagic echogram**

The *Pelagic echogram* shows you a selected part of the water column. The echoes start from any start depth below the sea surface, which is used as depth reference. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu. The bottom contour shall not be visible in the echogram.

In the pelagic echogram the calculations will disregard any bottom detection. All calculations are thus based on the entire echogram shown in the view. If the bottom echo is present in the echogram, the biomass calculation will be wrong.

- **Trawl echogram**

The *Trawl echogram* covers the vertical opening of the trawl with reference to the depth of the headrope. In addition to the trawl opening, the echogram covers a certain range over and under the trawl opening. This range is set by adjusting the **Start Range** and **Range** settings on the **Main** menu.

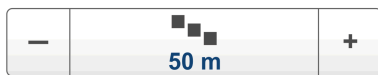
The echogram is only drawn when trawl position information is available.

## Procedure

- 1 Observe the **Main** menu.

Its default location is on the right side of the EK80 presentation.

- 2 On the **Main** menu, click **Start Range** to activate the function.



- 3 Choose the **Start Range** value.

Remember that in a bottom echogram, this value must be negative.

Use any of the following methods to change the depth range.

- a Click [+] or [-] to adjust the range manually.
  - b Click the middle of the button, hold the mouse button depressed, and drag sideways.
  - c Click the middle of the button to open it, then type the requested range on the keyboard.
- 4 On the **Main** menu, click **Range** to activate the function.



- 5 Choose the **Range** value.

Use any of the following methods to change the depth range.

- a Click [+] or [-] to adjust the range manually.
- b Click the middle of the button, hold the mouse button depressed, and drag sideways.
- c Click the middle of the button to open it, then type the requested range on the keyboard.

## Choosing echogram colours

Several different colour scales are predefined and available for the presentation of echograms. You can easily choose which colours to use.

### Context

Which colour scale to use is mainly a personal preference based on ambient light conditions, the nature of the echoes and your own experience.

Keep in mind that in the basic scale with 12 colours, each discrete colour represents a 3 dB range of echo signal strength. This implies that the next colour is selected every time the echo strength is doubled.

12 colours



Sonar colours



Echogram colours



Grayscale



BI500 colours



The **Echogram colours** scale is based on the standard 12-colour scale, but additional colours have been added between these to make smoother colour transitions.

By default you have 64 or 12 colours available to present the echoes, and a selection of palettes. The colour scale can be retrieved any time by clicking the **Colour Scale** icon on the top bar.

The currently selected colour scale is shown at the bottom of the EK80 presentation.

#### Tip

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*You can adjust the echo level range by means of the **Colour Scale** settings. This dialog box is opened from the **Colour Scale** information pane. You can also find the same parameters in the **Information Pane Options** dialog box on the **Active** menu.*



#### Procedure

- 1 Click the **Display** icon.

This icon is located under the **Main** menu. It is used to open the **Display** menu.

- 2 Click **Colour Setup**.



Observe that the **Colour Setup** dialog box opens.

- 3 Select the number of colours you wish to use.

#### Note

---

*If you wish to apply the predefined colour scales you must select 64 colours.*

---

- 4 Select the colour scale you wish to use.
- 5 Click **Apply** if you wish to preview the choice you have made.
- 6 Click **OK** to save the chosen parameters and close the dialog box.

## Checking the bottom detection settings

Bottom detection is important for accurate use of the EK80. Occasionally, difficult environmental, water or bottom conditions may inhibit bottom lock. The **Bottom Detection** dialog box is provided to rectify this.

### Prerequisites

This procedure assumes that the EK80 is operational.

### Context

The **Bottom Detection** parameters provide separate limits for minimum and maximum depth. These limits may be used to obtain "bottom lock" on the depth when the EK80 is pinging. The EK80 needs this lock to locate the correct depth, and to stay on it during the operation, even though the depth changes continuously.

### Procedure

- 1 Observe the **Main** menu.

Its default location is on the right side of the EK80 presentation.

- 2 Click the **Active** icon.

This icon is located under the **Main** menu. It is used to open the **Active** menu.

- 3 On the menu, click **Bottom Detection**.



Observe that the **Bottom Detection** dialog box opens.

- 4 Set **Minimum Depth** and **Maximum Depth** to values fit for the depth at your current location.
  - The **Minimum Depth** setting eliminates all unwanted bottom detections from the transducer surface and down to the depth you have chosen.
  - Set the **Maximum Depth** to approximately 50% more than the expected depth. If the EK80 should lose bottom detection due to air or other disturbances, it will try to relocate the depth within the minimum and maximum depths you have defined.

### Note

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*If you set maximum depth to a value identical or smaller than the minimum value, the bottom detection algorithm will be disabled. The EK80 will then not be able to detect the bottom at all, and the displayed depth will be 0.00 m*

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Tip

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*If you have problems with bottom detection, you may consider disabling the function. This can be useful when you only wish to study targets in the water column. Use the dedicated option in the **Bottom Detection** dialog box.*

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- 5 Click **OK** to save the chosen parameters and close the dialog box.

## Using the key functionality

### Topics

[Defining the file and folder settings for raw data recording, page 31](#)

[Defining the file and folder settings for processed data recording, page 32](#)

[Recording raw data, page 33](#)

[Recording processed data, page 35](#)

### Defining the file and folder settings for raw data recording

The EK80 allows you to record both raw and processed echo data. The data are saved on the Processor Unit's hard disk - or on an external data storage device - according to the preferences you have defined.

### Context

The **File Setup** parameters control how and where the recorded files are saved on the Processor Unit hard disk, or on an external disk. By adding a file name prefix, you can also identify files recorded from any specific mission or survey. Additional limitations may also be specified.

Set up the file and folder parameters before you start the recording.

### Note

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*Data files will normally become very large. If you wish to record large amounts of EK80 data, make sure that you have enough space on your hard disk. Unless your computer is equipped with a very large disk capacity, we recommend that you save the data files to an external storage device.*

---

If the current file size gets too big during recording, use the **Split File** function on the **Record RAW** button. This will close the current file, and then automatically continue recording to a new file.

### Procedure

- 1 Click the **Operation** icon.

This icon is located under the **Main** menu. It is used to open the **Operation** menu.

- 2 On the **Operation** menu, click **Output**.



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

- 3 On the left side, click **File Setup** to open the page.
- 4 On the **File Setup** page, define the relevant file and folder properties.
- 5 Click **OK** to save the chosen settings and close the dialog box.

## Defining the file and folder settings for processed data recording

The EK80 allows you to record processed data. The data are saved on the Processor Unit hard disk - or on an external data storage device - according to the preferences you have defined. You can also define the which file format to use.

### Context

The **File Setup** parameters control how and where the recorded files are saved on the Processor Unit hard disk, or on an external disk. By adding a file name prefix, you can also identify files recorded from any specific mission or survey. Additional limitations may also be specified.

Set up the file and folder parameters before you start the recording.

### Note

---

*Data files will normally become very large. If you wish to record large amounts of EK80 data, make sure that you have enough space on your hard disk. Unless your computer is equipped with a very large disk capacity, we recommend that you save the data files to an external storage device.*

---

### Procedure

- 1 Click the **Operation** icon.  
This icon is located under the **Main** menu. It is used to open the **Operation** menu.
- 2 On the **Operation** menu, click **Output**.



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

- 3 On the left side, click **File Setup** to open the page.
- 4 On the **File Setup** page, define the relevant file and folder properties.



- 5 On the left side of the **Output** dialog box, click **Processed Data Output** to open the page.
- 6 Select a file output format from the drop-down list, and click **Add** on the right side. Observe that the **Processed Data Output Configuration** dialog box opens to record the relevant settings for the chosen output format.
- 7 Choose the settings for the chosen output format.

#### Note

*Note that some formats will not allow you to create an output file.*

- 8 Click **OK** to close the **Processed Data Output Configuration** dialog box.
- 9 At the bottom of the **Output** dialog box, click **OK** to save the chosen parameters and close it.

## Recording raw data

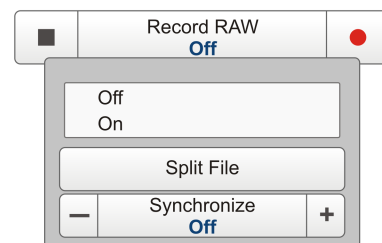
The raw data recording function provided by the EK80 allows you to save echo data on \*.raw format to a file on the Processor Unit hard disk, or onto an external disk.

### Prerequisites

Before you start raw data recording, make sure that you have defined where to store the data files.

#### Tip

*On the **Operation** menu, click **Output**→**File Setup** to define the recording parameters.*



### Context

On the EK80, you can save and recall echo information in the following ways.

- Screen captures
- Raw data
- History file

You can also save processed echogram data using the **Record Processed** function on the **Operation** menu. These data are only exported, and can not be played back on the EK80.

Note

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*Raw data files will normally become very large. If you wish to record large amounts of EK80 raw data, make sure that you have enough space on your hard disk. Unless your computer is equipped with a very large disk capacity, we recommend that you save the raw data to an external storage device.*

---

**Procedure**

- 1 Click the **Operation** icon.

This icon is located under the **Main** menu. It is used to open the **Operation** menu.

- 2 To start raw data recording, click the **Record RAW** button, and select *On*.



The **Record** button on the top bar will change colour to reflect that recording is active.

Tip

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*Alternatively, simply click the red circle on the right side of the button to start recording.*

*To synchronize simultaneous recording of raw and processed data, open the **Record RAW** button, and set **Synchronize** to *On*. With synchronization activated, you will automatically start and stop recording using only the **Record RAW** button on the **Operation** menu, and the **Record** button on the top bar.*

---

- 3 If you wish to reduce the size of the data file you are recording, click the middle of the button to open it, and select **Split File**.

The current file is the closed, and a new file is automatically generated.

- 4 To stop raw data recording, click the **Record RAW** button, and select *Off*.

Tip

---

*Alternatively, simply click the black rectangle on the left side of the button to stop recording.*

---

## Recording processed data

The processed data recording function provided by the EK80 allows you to save processed data to a file on the Processor Unit hard disk, or onto an external disk. Note that this is only an export format. Processed data file can not be played back on the EK80.

### Prerequisites

Before you start recording of processed data, make sure that you have defined where you wish to store the data files.

### Tip

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*On the **Operation** menu, click **Output**→**File Setup** to define the recording parameters.*

---

### Context

The processed data is only an export format, and can not be played back on the EK80. If you wish to save and recall echo information the following methods can be used.

- Bitmap images (containing the full EK80 screen) are saved whenever you click the **Screen Capture** button on the top bar. These images are recalled by means of the **Screen Captures** tab at the bottom of the EK80 presentation.
- Raw data is recorded using the **Record RAW** function on the **Operation** menu. The raw data files may be played back by placing the EK80 in *Replay* mode.
- A "history file" is recorded automatically and continuously. When the file is full, it will start to overwrite the oldest data, thus creating a "ring buffer". To play back the history file, click the **History** button on the top bar.

### Note

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*Data files will normally become very large. If you wish to record large amounts of EK80 data, make sure that you have enough space on your hard disk. Unless your computer is equipped with a very large disk capacity, we recommend that you save the data files to an external storage device.*

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### Tip

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*You may wish to synchronize the recording of raw and processed data. On the submenu under the **Record RAW** button, set **Synchronize** to **On**. The **Record** button on the top bar will indicate when raw and processed data are recorded simultaneously.*

---



## Procedure

- 1 Click the **Operation** icon.

This icon is located under the **Main** menu. It is used to open the **Operation** menu.

- 2 Verify that the **Record Processed** function is available.

If it is unavailable, it is most likely because you have forgotten to specify an output format. Open the **Output** dialog box, and select a format on the **Processed Data Output** page. Remember that not all formats can be saved on a file format.

- 3 To start recording of processed data, click the **Record Processed** button, and select *On*.



---

### Tip

*Alternatively, simply click the red circle on the right side of the button to start recording.*

*To synchronize simultaneous recording of raw and processed data, open the **Record RAW** button, and set **Synchronize** to *On*. With synchronization activated, you will automatically start and stop recording using only the **Record RAW** button on the **Operation** menu.*

---

- 4 To stop data recording of processed data, click the **Record Processed** button, and select *Off*.

---

### Tip

*Alternatively, simply click the black rectangle on the left side of the button to stop recording.*

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# User interface

## Topics

[EK80 presentation overview, page 37](#)

[Echogram views, page 39](#)

[Top bar description, page 40](#)

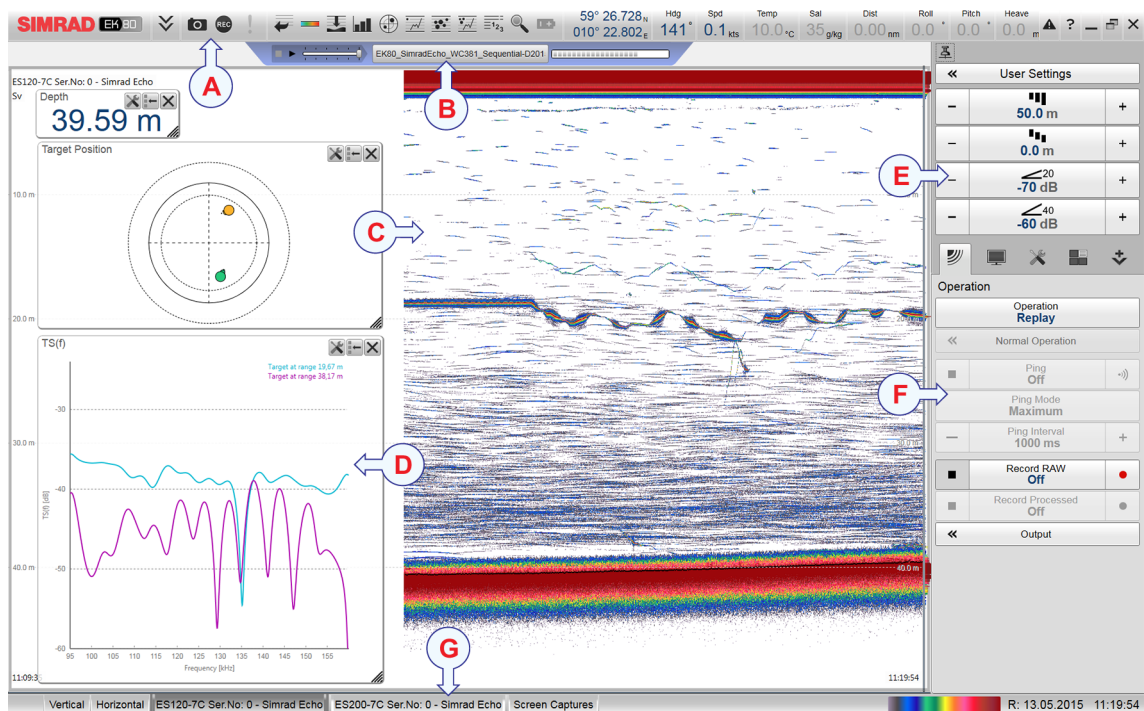
[Information panes, page 42](#)

[Menu system, page 43](#)

## EK80 presentation overview

By default, the EK80 presentation covers the entire screen.

This EK80 screen capture shows you a typical operational situation.



The presentation provides you with a lot of information. You can see one echogram views, and several information panes. The top bar shows you navigational information as well as buttons for key functions and information panes. The menu system on the right side gives you easy access to all the functionality offered by the EK80.

**A Top bar**

The top bar identifies Simrad as the manufacturer, and the name of the product (EK80). It also provides several information read-outs and buttons. These are used to hide or retrieve the menu system and the information panes, show you navigational information, and to enable basic system functionality.

**B Replay bar**

During replay a dedicated replay bar is provided under the top bar. The replay bar allows you to retrieve saved files, and to control the playback.

**C Echogram view**

The echograms take up the largest part of the EK80 presentation.

By default, you will have one echogram for each frequency channel (transceiver/transducer combination). You can choose which type of echogram you wish to see; *surface related*, *bottom related*, *pelagic* or *trawl*. If you have more than one frequency channel, the echograms for each frequency can be presented horizontally with one over the other, or vertically next to each other. This is controlled by the transducer tabs on the status bar.

This echogram example shows you a surface related echogram.

**D Information panes**

Several information panes are available to offer detailed information from the echo data. The information panes are opened from the top bar.

**E Main menu**

The menu system is by default located on the right hand side of the presentation. To open any of the sub-menus, click the icons under the **Main menu** menu. To hide or retrieve the **Main menu** menu, click the **Main menu** button on the top bar.



**F Secondary menus**

The secondary menus are opened and closed by clicking the buttons at the bottom of the **Main** menu.



**G Status bar**

The status bar is located at the bottom of the EK80 presentation.

## Echogram views

The EK80 supports several different echogram types, and each of these are shown as separate channel views (transceiver/transducer combinations) in the EK80 presentation. The status bar at the bottom of the EK80 presentation allows you to choose which channels you wish to see. If you wish to see all the channels, the views can be arranged in different visual configurations.

### Supported echogram types

The EK80 supports the following echogram types.

- **Surface echogram**

The *Surface echogram* shows the echoes starting from the sea surface and down. The sea surface is used as depth reference. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu.

- **Bottom echogram**

The *Bottom echogram* shows the echoes over and below the bottom contour. The bottom is used as depth reference, and is therefore shown as a flat contour. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu.

The echogram is only drawn for pings that have a successful bottom detection.

- **Pelagic echogram**

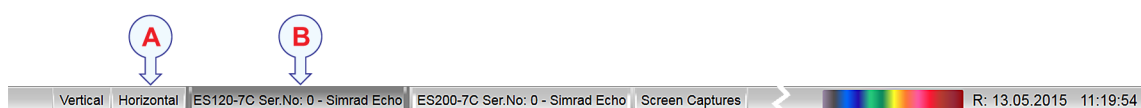
The *Pelagic echogram* shows you a selected part of the water column. The echoes start from any start depth below the sea surface, which is used as depth reference. You can select the start range (the depth from which the echogram starts) and the vertical range (the vertical "length" of the echogram) by means of the **Start Range** and **Range** settings on the **Main** menu. The bottom contour shall not be visible in the echogram.

- **Trawl echogram**

The *Trawl echogram* covers the vertical opening of the trawl with reference to the depth of the headrope. In addition to the trawl opening, the echogram covers a certain range over and under the trawl opening. This range is set by adjusting the **Start Range** and **Range** settings on the **Main** menu.

### Status bar

The number of tabs available on the status bar depends on how many channels your EK80 has. There are two tab groups that you can use to select channels and views. This example shows the EK80 with two channels.



## A Presentation modes

Three presentation modes are available when you wish to see all the echogram channels simultaneously in the EK80 presentation. The three tabs will arrange the echogram views vertically, horizontally, or in rectangular rows and columns.

Once the views are automatically arranged in the chosen presentation, you can click and drag the borders on the individual views to change the size of the rectangles. Please note that by increasing the size of one view, the others will be smaller.

### Note

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*The Vertical and Horizontal tabs will only be shown if you have two or more transducers.*

*The Square tab will only be shown if you have three or more transducers.*

---

## B Selecting individual echogram channels

Each channel (transceiver/transducer combination) is shown with a dedicated tab. The channel is identified with the name of the transducer in use. In many cases, this name will also include the operational frequency.

Click on a specific transducer tab to see only that channel in the EK80 presentation.

## Choosing echogram type

Once a number of echogram views are opened, you can choose which echogram type to see.

To choose echogram type, click in the view to make it "active". Then, open the **Active** menu, click **Echogram** to open the dialog box, and select **Echogram Type** on the **Echogram** page



In each echogram view, you can also select from a number of markers, lines and annotations to enhance the echogram, or to provide additional information. These can be selected on the **Lines** page in the **Echogram** dialog box.

## Top bar description

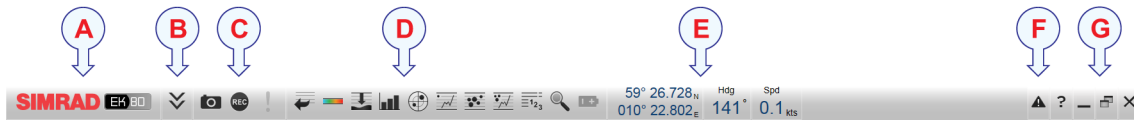
The EK80 top bar is located on the top of the display presentation, and stretches from the far left to the far right side.

The top bar gives you fast access to key functionality and navigational information. It provides buttons to hide or show the menu, to monitor data recording, to open the **Messages** dialog box, and to open the context sensitive on-line help.

And more important, the top bar holds the dedicated buttons to open the various information panes.



It also provides a few buttons related to operating system features.



**A Logo and product name**

This element identifies the manufacturer and the product.

**B Menu button**

Click this button to hide or show the menu system.

**C Screen capture, Record and Event**

These buttons are provided for easy access to recording and annotation functions.

**D Information panes**

Click any of these buttons to open and close selected information panes.

**E Navigational information**

These are not buttons, but information read-outs providing current data related to the vessel location, heading and movements. To select which information to see here, use the **Display Options** dialog box on the **Display** menu.

**F Messages.**

Click this button to open the **Messages** dialog box. This button will flash to indicate that a message is posted. The button colour indicates the severity of the message.

**G Operating system functions**

- **Help:** Click this button to open the context sensitive on-line help.
- **Minimize :** Click this button to minimize the EK80 presentation.
- **Maximize/Normalize:** Click this button to change the size of the EK80 presentation.
- **Close:** Click this button to close down the EK80.

Note

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*The information shown on the top bar must not be used for vessel navigation.*

---

## Information panes

The EK80 offers several *information panes* to provide additional and detailed data from the EK80 presentation. The information panes are opened and closed using the relevant buttons on the top bar.

In order to open an information pane, you must first click in an echogram presentation



to make it "active". By doing this you

select the frequency channel (transceiver/transducer combination). In most cases, the data in the information pane you open will only be valid for the selected echogram and frequency channel.

To *close* the information pane, click the button one more time. You can also click the **Close** button in the top right corner of the pane.

The EK80 offers the following information panes (from left):

- **History**

The *History* information pane allows you to view previously recorded echogram sequences. Note that this information pane does not use the same presentation method as the other panes.

- **Colour Scale**

The *Colour Scale* information pane allows you to view the current colour scale in use, and to make changes to the echo levels it presents.

- **Depth**

The *Depth* information pane provides the water depth in the current echogram view. If you have several echogram views open, you can place one pane in each view.

- **Target Strength Histogram**

The *Target Strength Histogram* information pane shows you a histogram of the echoes detected from single fishes. The histogram presents the strength of the echoes (shown in dB).

- **Target Position**

The *Target Position* information pane shows the position of the detected single echoes for the current ping (largest circles) and the three previous ping (smaller circles). The view is "from above". The colours indicate the echo strength.

- **TS(f)**

The *TS(f)* information pane offers an analysis of the target strength for single targets versus frequency. The algorithms use settings from the **Single Target Detection** dialog box.

- **Biomass**

The *Biomass* information pane displays an index of the biomass in the current echogram view. The biomass index is the same as the NASC (Nautical area scattering strength) with unit  $\text{m}^2/\text{nmi}^2$ .

- **Sv(f)**

The *Sv(f)* information pane shows you the volume backscatter as a function of the frequency.

- **Numerical**

The *Numerical* information pane offers a numerical and graphical presentation of all the various parameters applicable for the current mode and operation. Information about transducer, environment and current layers are included. The currently active layer is identified with red text.

- **Zoom**

The *Zoom* information pane allows you to zoom in on a chosen area in the current echogram.

- **Transceiver Power Supply**

The *Transceiver Power Supply* information pane shows you the current supply voltage to the Wide Band Transceiver (WBT).

#### Tip

You can easily change the size and shape of each information pane by clicking in its lower right corner and drag to a new size. To reset the pane to its default size, click the **Reset size** button in its top right corner.



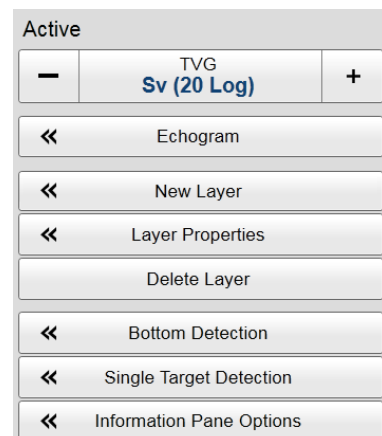
To change the transparency of the information pane use the **Transparency** function on the **View** menu.



## Menu system

The menu system is by default located on the right hand side of the EK80 presentation.

To change operational settings in the EK80, use the tree structure. It offers a main menu, a set of submenus, and several menu buttons. Some of the menu buttons open dialog boxes or sub-menus to present additional parameters.



The **Main** menu offers the settings most frequently used during normal operation.

Below the main menu, a set of dedicated icons are used to open the secondary menus. These are (from left):

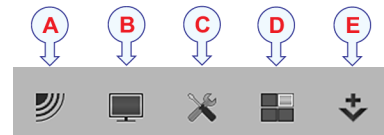
**A** The **Operation** menu controls the main operational parameters.

**B** The **Display** menu controls the visual aspects of the system, such as parameters related to the display presentation

**C** The **Setup** menu allows you to control the configuration of the signal processing, as well as system installation and maintenance, and the interfaces to peripheral devices.

**D** The **Active** menu has its content linked to the current active view. Use it to access special features available for the selected view.

**E** The **Extras** menu is not a menu at all, but a small pane offering key transmission parameters related to the currently active view.



---

Tip

*You can hide the menu from view if you do not need it. Click the **Menu** button on the top bar to hide the menu, and click one more time to retrieve it. When the menu is hidden, it will automatically reappear on the left or right side of the EK80 presentation if you move your mouse cursor to one of those positions.*

---



# Setting up the EK80 Scientific wide band echo sounder for the first time

## Topics

[Setting up summary, page 45](#)

[Installing the EK80 operational software, page 47](#)

[Powering up the EK80 to \*Passive\* mode, page 48](#)

[Obtaining and installing the software license, page 49](#)

[Defining the IP address on the Processor Unit network adapter for communication with the Wide Band Transceiver \(WBT\)., page 51](#)

[Installing one or more transducers, page 52](#)

[Installing transceiver channels, page 54](#)

[Adjusting the screen resolution, page 56](#)

## Setting up summary

Before a new EK80 Scientific wide band echo sounder can be put to use, it must be set up for operation. You must install the software, and configure transducer(s) and transceiver(s).

## Prerequisites

- The EK80 Scientific wide band echo sounder system units have all been installed according to the instructions in the EK80 *Installation manual*.
- All power and interface cables and connections have been connected and verified.
- All system units have been inspected.
- The EK80 operational software is available.
- The EK80 software license is available.

## Caution

---

*You must never power up the EK80 when the ship is in dry dock. The transducer will be damaged if it transmits in open air.*

---

## Procedure

- 1 Do the following preparations:
  - a Power up the Processor Unit.

- b Verify that you have administrative rights.
  - c Switch off any firewall applications.
  - d Open the operating systems's *Network and Sharing Center*, and set the IP address for the network adapter used to communicate with the transceiver.  
IP Address: **157.237.15.16** (*Example, any IP address can be used*)  
Subnet mask: **255.255.255.0**
- 2 Install the EK80 operational software.
  - 3 Power up the transceiver(s).
  - 4 Verify that the Processor Unit is connected to the transceiver(s) using the Ethernet cable specified in the EK80 *Installation manual*.  
If you use more than one transceiver, a high performance Ethernet switch must be used.

**Note**

---

*It is very important that a high quality Ethernet cable is used. You must use CAT-5E STP (Shielded Twisted Pair) quality or better. Using cables with lower bandwidth capacity will reduce the EK80 performance.*

---

- 5 Start the EK80.
- 6 Click **Setup**→**Installation**→**Software License** to insert the license string(s).
- 7 Click **Setup**→**Installation**→**Transducer** to add the correct transducer(s) from the list.  
For each transducer, type the serial number (found on the transducer body).
- 8 Click **Setup**→**Installation**→**Transceiver** to connect the Processor Unit to the transceiver(s).  
The available transceiver(s) should be listed. Check transceiver serial number according to correct frequency. For each transceiver, choose the correct transducer.  
If no transceivers are listed, click **Browse** button, and select correct network adapter IP address under **Local IP address**.
- 9 Set up the interfaces to peripheral navigation sensors.  
These procedures are described in the EK80 *Installation manual*.
- 10 Click **Setup**→**Environment** to select correct water temperature and salinity.  
If possible, average values for the water column must be used.
- 11 Start normal operation.
  - a Set **Operation** to *Normal*.
  - b Click **Operation**→**Normal Operation** to set the transmit parameters.
  - c Set **Ping Mode** to *Interval*, and choose a suitable ping rate.

- d Set up the raw data recording parameters.
- e Start and stop raw data recording by means of the **Record RAW** button.

**Note**

---

*To obtain quantitative data, the EK80 must be calibrated.*

*Observe the summary procedure, and the complete description in the EK80 Reference manual and on-line help.*

---

## Installing the EK80 operational software

If your EK80 Scientific wide band echo sounder is provided with a Processor Unit, the EK80 software has already been installed. If you intend to use your own computer, you must install the software yourself.

### Prerequisites

In order to install the EK80 operational software, you need the relevant file set on a suitable media. If the EK80 software is provided on a CD or a DVD, and your computer is not fitted with a suitable drive, copy the files to a USB flash drive.

**Note**

---

*You need administrative rights on the Processor Unit to install the EK80 software.*

---

If you purchased your own computer, you must verify that it meets the technical requirements for use with the EK80. Do this before you install the software.

### Context

If you are using one or more Wide Band Transceiver (WBT), you will need valid software licences to operate the EK80. You must install one license for each transceiver after the software installation.

### Procedure

- 1 Power up the Processor Unit (computer), and allow the operating system to start.
- 2 Verify that you have administrative rights on the Processor Unit.  
You will need this to install the EK80 software.
- 3 Insert the EK80 software media.
- 4 Use a file manager application on the computer to access the software files.
- 5 Double-click on the `Setup.exe` file to start the installation.

- 6 Allow the installation wizard to run. Follow the instructions provided.  
We recommend that you install the EK80 in the default folder suggested by the wizard.  
In the last dialog box you are permitted to remove old settings. Since this is your first installation of the software, you can disregard this option.
- 7 Once the installation has been completed, double-click the EK80 icon on the desktop to start the program.
- 8 Depending on your operating system parameters, certain dialog boxes may open.
  - a Observe that Windows 7 Firewall may open a dialog box requesting information about the network. Select **Public**, and click **Allow access**.
  - b The operating system may also open other dialog boxes to verify that the EK80 software can run on the computer. You must of course permit this.

### **Further requirements**

Observe the dedicated procedures for obtaining and installing the software licences.

## **Powering up the EK80 to *Passive* mode**

In order to use the EK80, you must first power it up. In this situation we do not want the EK80 to transmit, so we will leave it in *Passive* mode.

### **Prerequisites**

This procedure assumes that the entire EK80 installation has been inspected. All power sources have been measured and verified, and all system cables and connectors have been checked and tested.

It is also assumed that the EK80 software has been installed.

### **Context**

The EK80 software is not automatically started when the Processor Unit is powered up. Once the operating system has started, you must click the icon on the desktop.

When the EK80 is powered up and set to *Normal* mode, it will use the transducers to transmit acoustic pulses into the water.

### **Caution**

---

*You must never power up the EK80 when the ship is in dry dock. The transducer will be damaged if it transmits in open air.*

---



**Procedure**

- 1 Verify that the EK80 transceiver(s) are switched on.  
The Wide Band Transceiver (WBT) power supply is fitted with an on/off switch.
- 2 Power up the display(s).  
If required, refer to the instructions provided by the display manufacturer.
- 3 Power up the Processor Unit.  
If required, refer to the instructions provided by the computer manufacturer.  
Wait for the operating system to start up.
- 4 Double-click the EK80 icon on the Processor Unit desktop to start the program.  
Wait while the EK80 program starts.
- 5 Choose user settings.  
During the program load, a dialog box appears to let you choose from the current user settings available on the EK80. The dialog box is only visible a few seconds. You do not need to make a choice here. You can select your predefined user setting at any time by means of the **User Settings** dialog box on the **Main** menu.
- 6 Once the EK80 program has started, observe that the presentation fills the entire screen.

**Obtaining and installing the software license**

If your EK80 shall operate with a Wide Band Transceiver (WBT), you will need a valid license. Before you can use the EK80 you must obtain a "license string" and install it on your Processor Unit. Without a license you will not be able to communicate with the Wide Band Transceiver (WBT).

**Prerequisites**

This procedure assumes that the EK80 software has been installed on the Processor Unit.

**Context****Note**

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*This procedure is only valid if your EK80 shall operate with a Wide Band Transceiver (WBT).*

---

In order to obtain a software license for your EK80, you must contact a Simrad dealers or distributor. You can also use the request form on <http://www.simrad.com/support>, or contact our support department directly.

The software license is 32 character hexadecimal string built from the transceiver's serial number. It defines several key parameters that controls the functionality and behaviour

of the transceiver(s) you use. The software license is not linked to the physical Processor Unit. You can therefore easily move the EK80 software from one computer to another, just remember to take a copy of the license string.

**Note**

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*If you have purchased a complete EK80 system from Kongsberg Maritime with transducer(s) and a Processor Unit, the software license has already been installed.*

*Once you receive your software license string(s), do not lose them.*

---

**Procedure**

- 1 Obtain the software license.
  - a Check your transceiver(s), and write down the serial number(s).
  - b For each transceiver, write down how many transducers you have connected.
  - c For each transducer, write down:
    - The center frequency
    - The Q-value
    - The maximum nominal power rating for the transducer

- 2 Send the necessary information to one of Simrad's dealers or distributors.

You can also use the request form on <http://www.simrad.com/support>, or contact our support department directly.

You can use the following e-mail address:

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

Once the software license string(s) have been returned to you (most likely by e-mail), you can install the licenses into the EK80 software.

- 3 Observe the **Main** menu.

Its default location is on the right side of the EK80 presentation.

- 4 Click the **Setup** icon.

This icon is located under the **Main** menu. It is used to open the **Setup** menu.

- 5 On the **Setup** menu, click **Installation**.



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

- 6 On the left side of the **Installation** dialog box, click **Software License**.

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

- 7 Click **Type License String**, and type the license string into the dialog box.

If you do not have a computer keyboard connected to your EK80 system, click the **Keyboard** button to open an on-screen keyboard.

Tip

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*If you have received the license string on an electronic format (e-mail or text file), you can copy the string from the source document and paste it into the **Type License String** dialog box.*

---

- 8 Click **OK** to save the license string and close the **Type License String** dialog box.
- 9 Verify that the license string is placed in the **Currently active licenses** list.  
If necessary, click the arrow button [>] to move it from the list of inactive license string.
- 10 Click **Apply** and then **Close** to save all the parameters and close the **Installation** dialog box.

## Defining the IP address on the Processor Unit network adapter for communication with the Wide Band Transceiver (WBT).

The communication between the Processor Unit and the transceiver(s) is made using a high speed Ethernet cable. If more than one transceiver is used, an Ethernet switch is added. In order to communicate, you recommend that define which IP Address and Subnet mask the Ethernet adapter in the Processor Unit shall use for this communication.

### Prerequisites

This procedure is made for the Microsoft® Windows® 7 operating system. It is assumed that you are familiar with this operating system.

### Context

As long as you do not change the Processor Unit to an other computer, or replace the network adapter in your Processor Unit, you will only need to do this once.

### Procedure

- 1 On the Processor Unit, stop the EK80 program.
- 2 Open the **Network and Sharing Center** dialog box.
  - a In the bottom left corner, click **Start**.
  - b On the right hand side of the menu, click **Control Panel**.
  - c Select **Network and Sharing Center**.  
(If the Control Panel is shown with categories, select **View network status and tasks**.)

- d On the left hand menu, select **Change adapter settings**.
  - e Click once on your network adapter to select it, then left-click and select **Properties** on the short-cut menu.
  - f On the list of connections, click **Internet Protocol 4 (TCP/IPv4)**, and then **Properties**.
- 3 Select **Use the following IP address**, and type the IP address and network mask.
- IP Address: **157.237.15.16** (*Example, any IP address can be used*)
- Subnet mask: **255.255.255.0**
- You can leave **Subnet mask** blank and click **OK**. When you see an error message saying that the message subnet mask is missing, click **OK** again. A subnet mask will then automatically be generated.
- 4 Click **OK** to save the settings, then close all the dialog boxes.

## Installing one or more transducers

The transducers you wish to use with your EK80 Scientific wide band echo sounder must be "installed" as a part of the software configuration. Which transducers to use depends on the number of transceivers in your system, and the licenses you have for these.

### Prerequisites

It is assumed that the EK80 software has been installed, and that all relevant license strings have been applied.

### Context

Transducers are installed using the **Transducer** page in the **Installation** dialog box.

The list of transducers is generated from a system file on your Processor Unit. It contains all transducers compatible with the Wide Band Transceiver (WBT) as well as key technical information about each transducer.

### Procedure

- 1 Click the **Setup** icon.  
This icon is located under the **Main** menu. It is used to open the **Setup** menu.
- 2 On the **Setup** menu, click **Installation**.



- Observe that the **Installation** dialog box opens. This dialog box contains a number of pages selected by the menu on the left side.
- 3 On the left side of the **Installation** dialog box, click **Transducer** to open the page.

- 4 On the **Transducer** page, open the list, select which transducer you wish to install, and then click **Add**.

Observe that the **Add Transducer** dialog box opens.

- 5 Insert the transducer's serial number.

This serial number is very important, because you will need it as a reference identification when the EK80 Scientific wide band echo sounder is calibrated.

Tip

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*If you do not have a computer keyboard connected to your EK80 system, click the **Keyboard** button to open an on-screen keyboard.*

---

- 6 Type the name that you wish to use.

This is only for easy recognition.

The name you select will only be used to identify the transducer in other dialog boxes. It will not be reflected in raw or processed data that you export.

- 7 Click **OK** to close the **Add Transducer** dialog box.

- 8 Repeat these steps for every transducer you wish to install.

### **Result**

Once a transducer has been defined, it will be listed in the collapsed menu on the left side of the **Installation** dialog box. To see the relevant transducer information, click on the menu entry. The parameters collected by the **Add Transducer** dialog box are then shown.

This page contains a Remove button that allows you to remove the transducer from the EK80 configuration.

## Installing transceiver channels

In order to use the EK80 the Processor Unit must be connected to one or more transceivers, and each of these must in turn be connected to one or more transducers. This transceiver/transducer-combination is referred to as a "channel". Each channel must be installed before it can be put to use.

### Prerequisites

This procedure assumes that:

- The EK80 installation is complete with all cables connected.
- The transceiver has been powered up.
- The software license for each transceiver has been installed and activated.
- The Ethernet adapter in the Processor Unit has been set up with a unique IP address.
- All relevant transducers have been installed on the **Transducer** page in the **Installation** dialog box.

### Context

The **Transceiver Installation** parameters control the installation and disconnection of transceivers. Every time the page is opened, the EK80 software automatically performs a search on the Ethernet network for transceivers.

The phrase frequency channel is used to identify the combination of a transceiver, transducers and the frequencies offered.

The frequency channel list on the top of the **Transceiver Installation** page provides you with an overview of the frequency channels currently available.

If you have many transceivers connected you can change the size of the dialog box, or you can use the two arrows on the right hand side of the list to scroll up and down.

- **Busy:** The frequency channel is already in use, probably by another echo sounder on the same network. You can not connect to this channel.
- **Installed:** This frequency channel is connected to your EK80 system.
- **Lost:** This frequency channel can not be used.
- **Available:** This frequency channel is vacant and ready for use.

### Procedure

- 1 Observe the **Main** menu.

Its default location is on the right side of the EK80 presentation.

- 2 Click the **Setup** icon.

This icon is located under the **Main** menu. It is used to open the **Setup** menu.

- 3 On the **Setup** menu, click **Installation**.



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

- 4 Install the frequency channels(s).
- a Observe that the transceiver(s) you have connected to the Processor Unit are shown at the top of the page.

Each transceiver is identified with type and a serial number. The available channels on each transceiver are listed separately.

If no transceivers are listed, click **Browse** in the **Transceiver Browsing** field, and open the **Local IP Address** field to select the correct address for the Ethernet adapter you are using. This will make the EK80 search the network for available transceivers. If you still have no transceivers listed, check that each transceiver has been powered up, and that the Ethernet communication between the units is operational. Also, if you are using an Ethernet switch, verify that it works.

- b For each channel, use the drop-down list to choose transducer.

The list of transducers available for installation is defined by those you installed on the **Transducer** page.

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

*This is a critical task. You must ensure that the correct transducer is selected.*

---

- c Observe that the status for the relevant frequency channels changes to *Installed*.

- 5 Click **OK** to save the chosen settings and close the dialog box.

### **Result**

When all transceiver channels have been installed, you can go to the **Operation** menu and set **Operation** to *Normal*.

**Caution** \_\_\_\_\_

*You must never set the EK80 into normal operation when the ship is in dry dock. The transducer will be damaged if it transmits in open air.*

---

## Adjusting the screen resolution

If you purchase the Simrad EK80 Scientific wide band echo sounder with a "Enix" Processor Unit, you will see that the default screen resolution on the computer has been set to 1280 x 1024 pixels. We recommend that you use a higher resolution than this.

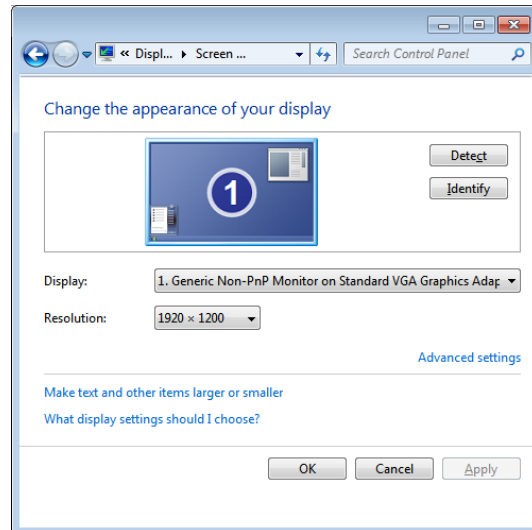
### Prerequisites

This procedure is made for the Microsoft® Windows® 7 operating system. It is assumed that you are familiar with this operating system.

### Context

As a general recommendation, you should set the screen resolution as high as possible. This will allow you more "space" in the EK80 presentation to offer more detailed information. The physical length of your top bar will also be extended, and free space for icons and navigational information.

As long as you do not change the Processor Unit to an other computer, replace the graphic adapter in your Processor Unit or the physical display, you will only need to do this once.



### Procedure

- 1 On the Processor Unit, stop the EK80 program.
- 2 In the bottom left corner of your computer desktop, click the **Start** button.
- 3 On the right side of the **Start** menu, click **Control Panel**.
- 4 Observe that the **Control Panel** opens.
- 5 In the **Control Panel** dialog box, under **Appearance and Personalization**, click **Adjust screen resolution**.
- 6 Change the display settings:
  - a Verify that the correct display is shown.
  - b Change the resolution to maximum permitted resolution for your display.
  - c Click **OK**.
  - d Observe that the screen resolution changes.
  - e Click **Keep changes** in the acknowledge dialog box that appears.
- 7 Click the [X] in the top right corner to close the **Control Panel**.



## Assembling a portable system

### Topics

[System diagram for a portable EK80 system, page 57](#)

[Assembling a portable system, page 58](#)

[Battery power cable, page 59](#)

[GPT Transducer plug connections, page 60](#)

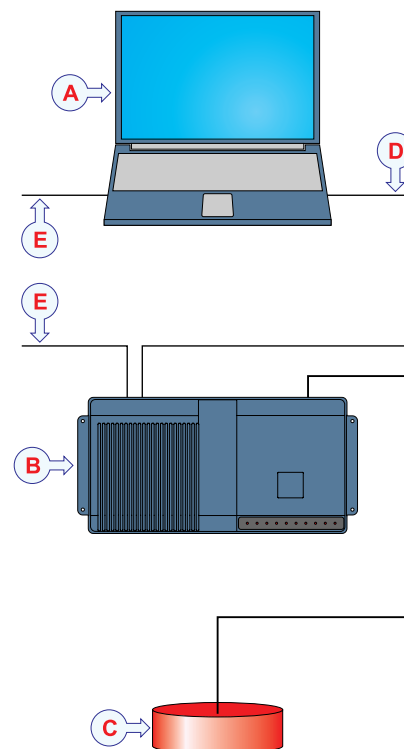
[GPT Transducer plug, page 60](#)

### System diagram for a portable EK80 system

The system diagram identifies the main components of a portable EK80 system, as well as the connections between the units.

The portable EK80 Scientific wide band echo sounder system consists of one transducer, one Wide Band Transceiver (WBT) and one computer. In this manual, the computer is referred to as the Processor Unit.

- A** Processor Unit
- B** Wide Band Transceiver (WBT)
- C** Transducer
- D** Ethernet cable between the Processor Unit and the Wide Band Transceiver (WBT)
- E** Cable to a suitable battery



## Assembling a portable system

A portable EK80 system does not require an "installation". However, each main unit must be connected together, and a suitable power source must be available. The use of external sensors must be dictated by the survey requirements.

### Prerequisites

Assembling a portable EK80 system does not require any special skills or tools. We will however suggest that initial unpacking and assembly take place in a workshop.

In many cases, the Processor Unit (computer) is not a part of the EK80 delivery. A suitable computer must be available.

We also suggest that you use a protective device that prevents the battery from complete discharging.

### Procedure

- 1 Unpack each item from its transport box.

#### Tip

---

*Consider keeping the boxes for future use.*

---

- 2 Use the packing list(s) to verify that all the necessary parts are included in the shipment.

If you believe that parts are missing, contact immediately the persons(s) concerned to have the necessary actions taken. This may be the Kongsberg Maritime support organization.

- 3 Inspect each item for visible damage following storage and/or transport.

If you find damage, such as dents, scratches or loose parts, contact immediately the persons(s) concerned to have the necessary actions taken.

- 4 Place the Processor Unit and the Wide Band Transceiver (WBT) on a suitable workbench for initial connecting up.

- 5 Place the transducer in a large bucket or tank of water.

#### Caution

---

*You must never set the EK80 to "ping" unless the transducer is submerged in water. Most transducers will be damaged if they transmit in open air.*

---

- 6 Connect the Processor Unit to the Wide Band Transceiver (WBT) using an Ethernet cable.

#### Note

*It is very important that a high quality Ethernet cable is used. You must use CAT-5E STP (Shielded Twisted Pair) quality or better. Using cables with lower bandwidth capacity will reduce the EK80 performance.*

- 7 Connect the transducer cable to the socket on the rear side of the Wide Band Transceiver (WBT).
- 8 Connect the Processor Unit and the Wide Band Transceiver (WBT) to a suitable power source.

A suitable power source may for example be a +12 Vdc car battery. We suggest that also use a protective device that prevents the battery from complete discharging.

#### Further requirements

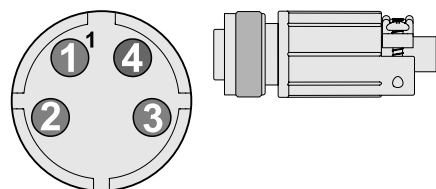
You can now power up the Processor Unit, install the software and the license(s), and set up the EK80 system for normal operation.

### Battery power cable

A suitable cable must be provided if you wish to power the Wide Band Transceiver (WBT) from a battery.

The power socket is mounted on the rear panel of the Wide Band Transceiver (WBT).

The socket is made to fit a Conxall 4-pin **Mini-Con-X®** shielded plug. One spare plug is included with the EK80 delivery, you can use this if you wish to power the Wide Band Transceiver (WBT) from a battery.



The plug can also be ordered from the manufacturer (<http://www.conxall.com>), or purchased from Kongsberg Maritime using order number **390616**.

#### Pin configuration

Pin	1	2	3	4
Use	+12 Vdc	0 Vdc	0 Vdc	+12 Vdc

#### Minimum cable requirements

- **Conductors:** 2 x 1.5 mm<sup>2</sup>
- **Screen:** None

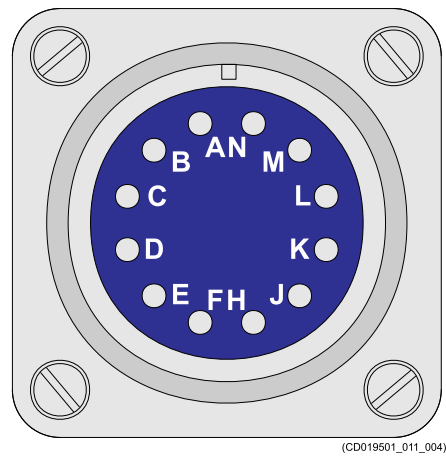
- **Voltage:** 60 V
- **Maximum outer diameter:** N/A

## GPT Transducer plug connections

The transducer plug on the General Purpose Transceiver (GPT) and some versions of the Wide Band Transceiver (WBT) allows offers 12 pins named A through N.

The special plug used to connect the transducer(s) to the Wide Band Transceiver (WBT) is provided with the EK80 delivery.

- A** Segment 4 (+)
- B** Segment 4 (-)
- C** Segment 3 (+)
- D** Segment 3 (-)
- E** Segment 2 (+)
- F** Segment 2 (-)
- G** Does not exist
- H** Segment 1 (+)
- I** Does not exist
- J** Segment 1 (-)
- K** Not used
- L** Used for specific transducer functionality
- M** Used for specific transducer functionality
- N** Cable screen



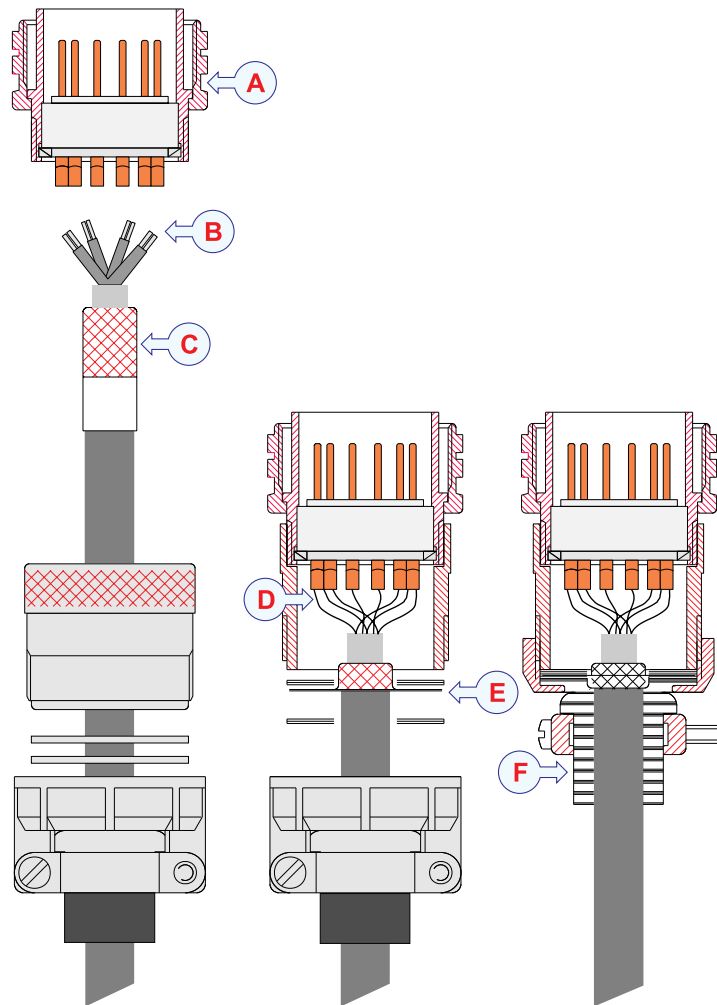
If you need more information about the transducer connections, refer to the documentation provided with the transducer, or to the EK80 *Installation manual*.

## GPT Transducer plug

The transducer plug on the General Purpose Transceiver (GPT) and some versions of the Wide Band Transceiver (WBT) allows you to connect one or more single and split beam transducers to the transceiver.

In order to connect the transducer cable to the plug, the plug must be disassembled as described below.

- A** Disassemble the plug.
- B** Remove a few millimeters of the insulation on the individual cables.
- C** Fold the outer and inner screen backwards, and fasten them temporary with tape.
- D** Thread each wire through a heat-shrinkable tubing, solder the wire end to the appropriate pin, and insulate with the heat-shrinkable tubing.
- E** Remove the tape from the outer and inner screen, and spread the screens out to place them between the large washers.
- F** Assemble the plug house, and tighten the rubber sleeve.



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# Menu system

## Topics

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[Extras menu, page 71](#)

## Main menu

The **Main** menu is located at the top of the menu structure. It provides the most common functions for efficient use of the EK80. Unless you hide the entire menu system, the **Main** is visible at all times, even if you close the secondary menus.

### How to open

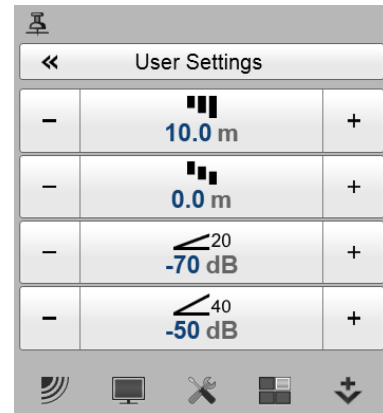
On the top bar, click once on the **Menu** button to hide the menu, and one more time to bring it back again. When the **Menu** is hidden, it will temporarily be shown on the left or right hand side of the display if you move the cursor to that position.



## Description

- **User Settings**

The **User Settings** dialog box allows you to save the current user settings (your current selection of operational parameters), and to retrieve factory or previously saved user settings.



- **Range**

The **Range** function allows you to specify the vertical range of the water column covered by the echogram. The range is defined from a selected start range, and down to a value beneath the current bottom depth. The value shown and selected is by default applied only to the currently selected echogram.

- **Start Range**

The **Start Range** function allows you to specify the start depth of the echogram; that is from which depth in the water column the presentation shall start. The value shown and selected is applied only to the currently selected echogram type.

- **Gain**

The purpose of the **Gain** function is to adjust the echo level in the EK80 presentations. In other words, it controls how much amplification that is applied to the received echoes. Note that the selected gain is by default only applied to the active view.

### Tip

*For detailed information about every function, button and dialog box, refer to the EK80 Reference manual or the context sensitive on-line help.*

## Secondary menus

The bottom of the **Main** menu holds the icons to open (and close) the secondary menus. Click once on an icon to open the requested menu, and one more time to close it.

## Hiding the menu

If you do not need to use the menu system, click once on the **Menu** button on the top bar. This will hide the menu. Click one more time to bring it back again. When the **Menu** is hidden, it will temporarily be shown on the left or right hand side of the EK80 presentation if you move the cursor to that position.



## Operation menu

The **Operation** menu offers the most common functions for basic EK80 operation.

### How to open

Click once on the icon under the **Main** menu to open the **Operation** menu.

Click one more time on the icon to close the menu.



### Note

*Immediately after you have powered up the EK80 system, you will see that the menu icon is flashing. This is to remind you that the EK80 is currently passive.*

*To start the EK80, you must set **Operation** to **Normal** and **Ping** to **On**.*

### Description

#### 1 Operation

The **Operation** function controls the operational mode of the EK80. You can set it to *Normal*, *Replay*, or *Inactive*.

#### 2 Normal Operation

The purpose of the **Normal Operation** dialog box is to provide you with an overview of the current transceiver parameters. It will also allow you to change these parameters.

#### 3 Ping

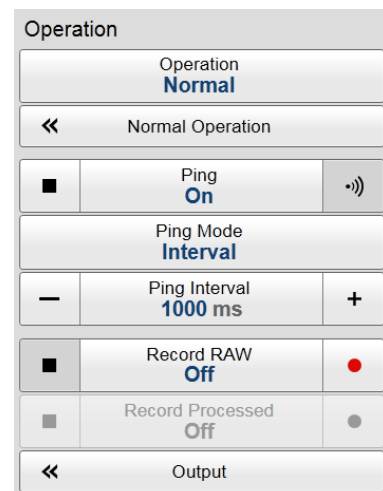
The purpose of the **Ping** function is to enable or disable the EK80 transmissions into the water. Such transmissions are often referred to as "pinging".

#### 4 Ping Mode

The **Ping Mode** function is used to control how often the EK80 shall transmit its energy into the water. For normal use, choose *Interval*, and set the **Ping Interval** according to the survey requirements.

#### 5 Ping Interval

The **Ping Interval** function is used when **Ping Mode** is set to *Interval*. The **Ping Interval** function will then permit you to choose the time (in milliseconds) between each transmission ("ping").





## 6 Record RAW

The **Record RAW** function allows you to record the *unprocessed* echo data received by the transducer, and save them on the internal hard disk. The raw data files can later be copied or moved to other recordable media.

## 7 Record Processed

The **Record Processed** function allows you to record the *processed* echo data received by the transducer, and save them on the internal hard disk. The data files can later be copied or moved to other recordable media. Which processing to apply is controlled by the **Processed Data Output** parameters in the **Outputs** dialog box.

## 8 Output

The purpose of the **Output** dialog box is to collect all functionality related to EK80 data output in one easily accessible location.

The following pages can be opened.

- **File Setup**

The purpose of the **File Setup** page is to define the file and folder properties for the RAW and Processed data files recorded with the EK80.

- **I/O Setup**

The **I/O Setup** parameters allow you to define which data are that imported on each of the available Ethernet and serial ports on the EK80 Processor Unit. For each port, you can also set up the communication parameters, and monitor the data flow.

- **Processed Data Output**

The purpose of the **Processed Data Output** page is to define which processed data formats to export, and where to place the files.

- **Depth Output**

The **Depth Output** parameters are used to set up the output of depth data from the EK80 using a dedicated communication port (serial or Ethernet) on the Processor Unit.

- **Relay Output**

The **Relay Output** parameters allow you to export the sensor data that was originally imported into the EK80 system. This sensor data includes navigational information, motion sensor data and sound velocity.

### Tip

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*For detailed information about every function, button and dialog box, refer to the EK80 Reference manual or the context sensitive on-line help.*

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## Display menu

The **Display** menu provides basic functions related to the screen behaviour and presentation of EK80 data.

### How to open

Click once on the icon under the **Main** menu to open the **Display** menu.

Click one more time on the icon to close the menu.



### Description

#### 1 Screen Brightness

The purpose of the **Screen Brightness** function is to adjust the intensity of the light given off by the display presentation.

#### 2 Transparency

When you open an information pane, you will see that it is transparent. The **Transparency** function allows you to adjust how much you are able to see "through" the information panes you have opened.

#### 3 Layout

The purpose of the **Layout** dialog box is to define which transducer channels you wish to see in the EK80 presentation. You can also position the echogram views in relation to each other.

#### 4 Display Options

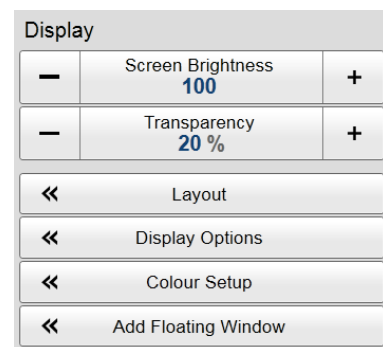
The **Display Options** dialog box allows you to control the location of the menu. It also controls which information you wish to see on the top bar and in the status bar.

#### 5 Colour Setup

The **Colour Setup** dialog box allows you to select the presentation colours used by the EK80.

#### 6 Add Floating Window

The **Add Floating Window** dialog box allows you to grab a complete echogram presentation for a chosen channel, and place it in a separate window. This window can for example be moved to a separate display on a Processor Unit using two or more displays.



### Tip

*For detailed information about every function, button and dialog box, refer to the EK80 Reference manual or the context sensitive on-line help.*

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## Main menu

The **Setup** menu provides basic functions related to EK80 installation parameters and communication with peripheral systems.

### How to open

Click once on the icon under the **Main** menu to open the **Setup** menu.

Click one more time on the icon to close the menu.



### Description

- **Environment**

The **Environment** dialog box allows you to adjust the parameters related to salinity, sound speed and water temperature.

- **Manual Annotation**

The **Manual Annotation** dialog box allows you to type a text string. Once you click **OK**, the text string is added to your echogram.

- **Calibration**

The purpose of the **Calibration** button is to start the "wizard" that takes you through the calibration process.

- **Calculation Interval**

The **Calculation Interval** options allow you to define the time, number of pings, or sailed distance used to calculate the biomass and the size distribution.

- **Installation**

The **Installation** dialog box allows you to control basic operational parameters related to EK80 installation and operation.

- **Transducer**

The **Transducer** page allows you to select the transducers you wish to use with your EK80 Scientific wide band echo sounder. Which transducers to use depends on the number of transceivers in your system, and the licenses you have for these.

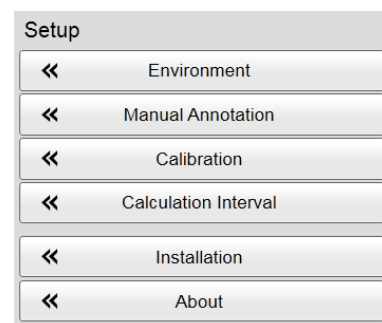
- **Transceiver**

The purpose of the **Transceiver** parameters are to define the necessary settings to connect the Processor Unit to the transceiver(s) and the transducer(s).

- **I/O Setup**

The **I/O Setup** parameters allow you to define which data are that imported on each of the available Ethernet and serial ports on the EK80 Processor Unit. For each port, you can also set up the communication parameters, and monitor the data flow.

- **Synchronization**



The purpose of the **Synchronization** parameters are to set up the EK80 to operate alone, or as a master or slave in a synchronized system. Synchronization is required in order to avoid interference if the EK80 is used simultaneously with other hydroacoustic instruments within the same frequency range.

– **Units**

The parameters on the **Units** page allow you to control the units of measurements used by the EK80.

– **Navigation**

The **Navigation** pages control how the EK80 receives information from external peripherals, such as positioning and/or gyro compass systems. The information provided by these systems are shown in the top bar.

– **Trawl**

The **Trawl** page allows you to enter the key parameters related to the trawl. The information is used to show the upper and lower trawl lines in the echogram.

– **Annotations**

The settings on the **Annotations** page allow you to type comments and annotations into the echograms.

– **Remote Control**

The **Remote Control** parameters allow you to set up the remote controlled operation of the EK80. The parameters define both how the EK80 can be controlled from a peripheral system, and how the EK80 can export information to this system.

– **Software License**

The purpose of the **Software License** page is to allow you to type the necessary license codes (text strings) to unlock the EK80 functionality.

• **About**

The **About** dialog box allows you to see the current EK80 software version.

Tip

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*For detailed information about every function, button and dialog box, refer to the EK80 Reference manual or the context sensitive on-line help.*

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## Active menu

The **Active** menu offers parameters related to current views and data presentations shown by the EK80.

### How to open

Click once on the icon under the **Main** menu to open the **Active** menu.

Click one more time on the icon to close the menu.



### Description

- **TVG**

The **TVG** (Time Variable Gain) function allows you to compensate the received data for loss due to geometric spread and absorption.

- **Echogram**

The **Echogram** dialog box allows you to set up the parameters controlling the echogram presentation. The three tabs control the horizontal lines, the echogram type with applied TVG (time varied gain), and how fast the echogram travels horizontally across the display.

- **New Layer**

The **New Layer** dialog box is used to insert a new depth layer.

- **Layer Properties**

The **Layer Properties** dialog box is used to change the current properties of the chosen ("active") depth layer.

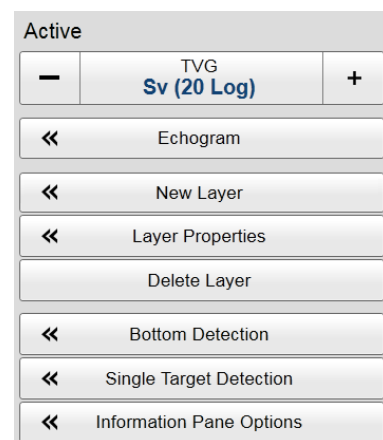
- **Delete Layer**

The **Delete Layer** function allows you to delete the currently selected ("active") depth layer.

- **Bottom Detection**

The purpose of the **Bottom Detection** parameters is to define the upper and lower depth limits most likely to be used during the EK80 operation. You can also modify the setting for **Bottom Backstep** to change the bottom detection relative to the bottom echo.

If you have problems with bottom detection, you may consider disabling the function. This can be useful when you only wish to study targets in the water column. Use the dedicated option in the **Bottom Detection** dialog box.



- **Single Target Detection**

The **Single Target Detection** parameters are used to control the operational settings for the detection of single targets. In order to detect single fish correctly, these parameters must be defined to suit the target characteristics. The settings made will not have any effect on the raw data that you save during the survey.

- **Information Pane Options**

The **Information Pane Options** dialog box allows you to change the operational parameters used to present the data in the information panes.

- **Bottom Detection**

The purpose of the **Bottom Detection** parameters is to define the upper and lower depth limits most likely to be used during the EK80 operation. You can also modify the setting for **Bottom Backstep** to change the bottom detection relative to the bottom echo.

- **Single Target Detection**

The **Single Target Detection** parameters are used to control the operational settings for the detection of single targets. In order to detect single fish correctly, these parameters must be defined to suit the target characteristics. The settings made will not have any effect on the raw data that you save during the survey.

- **Calculation Interval**

The **Calculation Interval** options allow you to define the time, number of pings, or sailed distance used to calculate the biomass and the size distribution.

- **Colour Scale**

The **Colour Scale** dialog box allows you to change the echo level range presented by the current colour scale in the active view.

- **TS Histogram**

The **TS Histogram** options allow you to set up the parameters for the histogram presented in the *TS (Target Strength) Histogram* information pane.

- **Sv(f)**

The **Sv(f)** page controls the scale used in the *Sv(f)* information pane.

- **TS(f)**

The **TS(f)** page controls the scale used in the *TS(f)* information pane.

Tip

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*For detailed information about every function, button and dialog box, refer to the EK80 Reference manual or the context sensitive on-line help.*

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## Context sensitivity

The choices in the **Active** menu depends on which view in the EK80 presentation that is currently "active".

The name of the currently active view is identified at the top of the menu.

To activate a view, click in it. The chosen view will appear with a thicker frame to indicate that it is active. The **Active** menu may therefore change from one view to another.

## Extras menu

The **Extras** menu is - in spite of it location - not a menu at all. This "menu" opens a small view to monitor key operational parameters.

### How to open

Click once on the icon under the **Main** menu to open the **Extras** "menu".

Click one more time on the icon to close the "menu".



### Description

The **Extras** "menu" offers you the following parameter settings for the transceiver:

- Mode
- Pulse duration
- Sample interval
- Frequency
- Power
- Slope (in %)
- Ping rate
- Noise estimate
- Equivalent ambient noise

Additional parameters are shown for the currently selected depth layer.

Extras		
<b>Transceiver Settings</b>		
Mode:	<b>Active</b>	
Pulse Duration:	1.024	ms
Sample Interval:	0.085	ms
Frequency:	38000	Hz
Power:	2000	W
Slope:	0	%
Ping Rate:	0.5	pps
Noise Estimate:	-235.2	dB
Equivalent Ambient Noise:	-45.2	dB
<b>Selected Layer</b>		
Type:	<b>Surface</b>	
Calculation Interval:	200	Ping
Upper border:	50.0	m
Lower border:	100.0	m
sA:	0	m <sup>2</sup> /nmi <sup>2</sup>
Sv:	-256	m <sup>2</sup> /m <sup>3</sup>
Number of targets:	8	
Max TS in ping:	-14.1	dB
at depth:	53.30	m
Along angle:	0.0	°
Athwart angle:	0.0	°
Max TS in interval:	-14.1	dB
at depth:	53.30	m

Note

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*The **Mode** is controlled by the **Operation** button on the **Operation** menu.*

*The **Pulse duration**, **Sample Interval** and **Power** parameters are controlled in the **Normal Operation** dialog box, while the **Frequency** parameter is defined by the transducer channel and the pulse type.*

*The **Slope** value also comes from the **Normal Operation** dialog box, where it is called **Ramping**.*

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