



KONGSBERG

QUICK START GUIDE

Simrad EK80



Simrad EK80
Scientific wide band echo sounder
Quick start guide
Release 2.0.x

This manual provides you with the basic information required to get you started with the Simrad EK80 Scientific wide band echo sounder and ADCP. For more information about the practical use of the EK80 system, as well as detailed information about the functions and dialog boxes provided, refer to the *Reference Manual* and/or the context sensitive *On-line help*.

Note _____

You must never set the system to "ping" unless the transducer is submerged in water. Most transducers are damaged beyond repair if they transmit in open air. Prevent inadvertent use of the system whenever a transducer is not submerged.

Additional end-user documents related to the EK80 system can be found on our website. This includes publications that are translated to other languages.

- <https://www.kongsberg.com/ek80>

Document information

- **Product:** Simrad EK80
- **Document:** Quick start guide
- **Document part number:** 403825
- **Document ISBN number:**
- **Revision:** C
- **Date of issue:** 5 December 2020

Copyright

The information contained in this document remains the sole property of Kongsberg Maritime AS. No part of this document may be copied or reproduced in any form or by any means, and the information contained within it is not to be communicated to a third party, without the prior written consent of Kongsberg Maritime AS.

Warning

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

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

Disclaimer

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

Support information

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

Table of contents

SIMRAD EK80	5
HARDWARE INSTALLATION FOR PORTABLE AND LAB SETUP	7
SETTING THE EK80 SYSTEM TO WORK.....	9
Installing the EK80 operational software	9
Obtaining and installing the software license	10
Defining the IP address on the Processor Unit network adapter for communication with the transceiver	11
Installing one or more transducers.....	12
Setting up transceiver channels.....	13
GETTING STARTED	14
Turning on the EK80 system	14
Starting normal operation	15
Replay data.....	16
Getting to know the user interface.....	18
Record data	20
Turning off the EK80 system.....	21
TARGET STRENGTH CALIBRATION SUMMARY	22
GET MORE INFORMATION	25
Opening the context-sensitive online help.....	25
End-user documentation	26

Simrad EK80

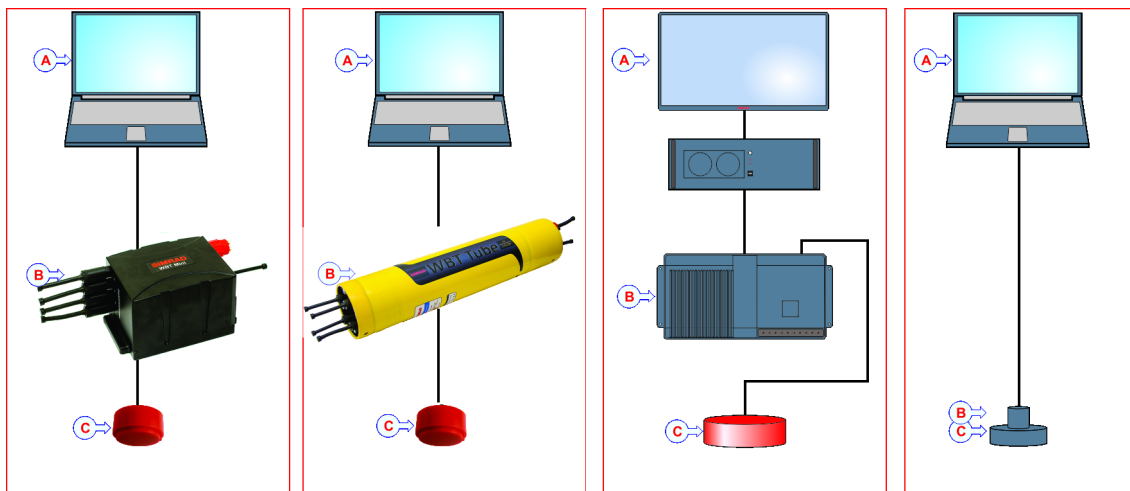
The system diagram identifies the main components of a basic EK80 system. Only the main connections between the units are shown. Detailed interface capabilities and power cables are not shown.

In this publication, the computer is referred to as the Processor Unit.

Basic system

The basic Simrad EK80 Scientific wide band echo sounder consists of one transducer, one Wide Band Transceiver (WBT) and one Processor Unit. Additional transceivers and transducers can be added to meet your operational and functional requirements. Post-processing software is provided by third-party suppliers. See our website for more information.

Unless otherwise specified in a contract, the display and the Ethernet switch are not included in the standard delivery from Kongsberg Maritime. These are commercial items that can be purchased locally.



- A** *Display + Processor Unit*
- B** *Transceiver of the following types: WBT mini, WBT Tube, WBT and EC150–3C.*
- C** *Transducers*

Transceiver unit

The transceiver unit is provided to transmit and receive acoustic energy through the water, using an appropriate transducer. This transmission and reception are commonly referred to as a *ping*. After each transmission, the transceiver receives the echoes from the targets in the water and/or the seabed. These echoes are filtered and amplified and then converted into digital format.

Transducers

The EK80 Scientific wide band echo sounder can be used with all our single-beam and split-beam transducers. In most cases, one split-beam transducer is used for each transceiver. Several operational frequencies are available. Consult our website for a complete description.

- <https://www.kongsberg.com/maritime/products/commercial-fisheries/td>

The EK80 can be expanded by adding dedicated hardware for acoustic Doppler current profiler (ADCP) measurements.

This manual gives a brief instruction on how to install the EK80 hardware and how you use the EK80 software. The EK80 software can be installed and used without access to any hardware. Replaying recorded files is a great way to familiarize oneself with the software. You can even perform a full calibration based on previously recorded files.

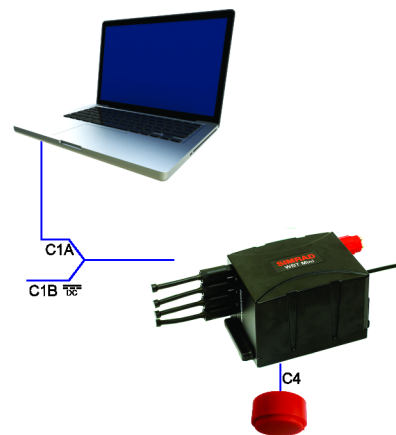
Hardware installation for portable and lab setup

Several of the EK80 transceivers are well suited for portable applications such as surveys from a small vessel. Testing the equipment in the lab is also a great way of getting to know the equipment and to ensure that everything is working before going into the field. This is a summary of the general installation considerations and requirements applicable for portable and lab setup.

Context

Make sure that you don't ping with a transducer out of the water. Use a small water tank and keep the transducer submerged. You should not ping at full transmit power when working under these conditions. It is also perfectly fine to operate all the EK80 transceivers with no transducer connected.

For a portable and lab a setup system, an overall procedure is provided here. This procedure does not describe any detailed tasks. For more details and relevant descriptions use the EK80 *Installation manual*.



Procedure

- 1 Unpack the various units that comprise the EK80.
- 2 Connect the units together as indicated in the schematics.

If you use more than one transceiver, a high performance Ethernet switch must be used.

Note

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

- 3 Connect power.
- 4 Power up the Processor Unit.
- 5 Install and start the EK80 software.

Note

For information about the practical use of the EK80, refer to the EK80 Reference Manual. End-user documents related to the EK80 system can be found on our website. You can also find information in the EK80 Context Sensitive On-line Help.

Related topics

[Replay data, page 16](#)

Setting the EK80 system to work

Topics

[Installing the EK80 operational software, page 9](#)

[Obtaining and installing the software license, page 10](#)

[Defining the IP address on the Processor Unit network adapter for communication with the transceiver, page 11](#)

[Installing one or more transducers, page 12](#)

[Setting up transceiver channels, page 13](#)

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.

Context

Make sure that you have administrative rights on the Processor Unit. You need this to install the software. If you purchased your own computer, you must verify that it meets the technical requirements for use with the EK80. Computer requirements are found on the EK80 website, follow the link down below. Do this before you install the software.

Procedure

- 1 Switch off any firewall applications.
- 2 Use a file manager application on the Processor Unit to access the software files.

- 3 Double-click `Setup.exe` to start the installation.
- 4 Allow the installation wizard to run. Follow the instructions provided.
We recommend that you install the software 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.
- 5 Once the software installation has been completed, double-click the icon on the desktop to start the program.

Result

You are now ready to explore the system functionality using the *Replay* mode and data files obtained in previous missions.

Note

Replay files are downloaded from the system website. These can be used for training and to get to know the system.

- <https://www.kongsberg.com/ek80>
-

To start using additional hardware like transducers and transceivers, these must be installed both physically and in the software.

Related topics

[Replay data, page 16](#)

Obtaining and installing the software license

To operate the EK80 with a transceiver you need a valid software 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 transceiver.

Context

This information is only valid if your EK80 is meant to operate with one (or more) of the following transceivers:

Wide Band Transceiver (WBT), WBT Tube, WBT Mini, EC150-3C

In order to obtain a software license you must contact one of our dealers or distributors. You can also use the request form on <https://www.kongsberg.com/simradsupport>, or contact our support department directly.

Procedure

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



- 2 On the left side of the **Installation** dialog box, select **Software License**.
- 3 Select **Type License String**, and type the license string into the dialog box.
- 4 Select **OK** to save the license string and close the **Type License String** dialog box.
- 5 Verify that the license string is placed in the **Currently active licenses** list.
- 6 Select **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 transceiver

The Processor Unit and the transceiver(s) communicate on a high capacity Ethernet cable. If more than one transceiver is used, an Ethernet switch is added. On the Processor Unit, define the IP address and Subnet mask for the Ethernet port used to communicate with the transceiver(s). The EK80 automatically assigns an IP address to each transceiver when they are turned off and on.

Context

This procedure is only performed once, unless you make changes to your system.

Procedure

- 1 On the Processor Unit, close the EK80 program.
- 2 Open the **Network Connections** dialog box.
- 3 Select **Use the following IP address**, and type the IP address and network mask.
 - **IP Address:** 157.237.15.12
IP address for the transceiver network adapter.
Any address can be used, but 157.237.15.12 is recommended for legacy reasons. This is particularly important if your system contains old GPT transceivers.
 - **Subnet mask:** 255.255.255.0

You can leave **Subnet mask** blank and select **OK**. When you see an error message saying that the message subnet mask is missing, select **OK** again. A default subnet mask is then automatically generated.

- 4 Select **OK** to save the selected settings, and then close all the dialog boxes.
- 5 Start the EK80 program.
- 6 Open the **Transceiver Installation** page. The **Transceiver Installation** page is located in the **Installation** dialog box.
- 7 Under **Transceiver Browsing**, select the IP Address that you just specified for the Ethernet adapter, from the list.
- 8 At the bottom of the page, select **Apply** to save your settings.
- 9 Turn each transceiver off and on.

This forces the EK80 to assign new IP addresses to each transceiver within the selected IP range. This does not apply to old GPT transceivers. These have fixed, static IP addresses

Installing one or more transducers

New types of transducers will automatically be recognized and installed in the software. Older types of transducers must be installed manually following the guidelines given here.

Context

This procedure must be performed each time you add or change transducer(s) in your system.

Procedure

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



- 2 On the left side of the **Installation** dialog box, select **Transducer Installation**.
- 3 Select the transducer you wish to install from the **Model** list.
- 4 Insert the parameters for the new transducer. The parameters include serial number, installation method, orientation and position (if on a ship).
- 5 Select **Add** to save the information you have provided.
- 6 Repeat for each transducer that you wish to install.

You are now ready to connect the transducer to a transceiver, using the **Transceiver** page.

Setting up transceiver channels

In order to record data the processor unit must be connected to one or more transceivers. These must in turn be connected to one or more transducers. This communication connection is called a channel. Each channel must be installed before it can be put to use. In this context, the phrase *channel* is used as a common term to identify the combination of transceiver, transducer and operating frequency.

Prerequisites

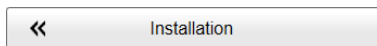
- The EK80 system is installed as specified in the *Installation Manual*. All units are turned on.
- The software license for each transceiver is installed and activated.
- The Ethernet adapter in the Processor Unit is set up with a unique IP address.
- All relevant transducers are installed using the **Transducer Installation** page.

Context

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

Procedure

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



- 2 On the left side of the **Installation** dialog box, select **Transceiver**.
- 3 Install the channel(s).

- a For each channel, choose which transducer to connect to.

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

Note

This is a critical task. Make sure that the correct transducer is selected.

- b At the bottom of the page, select **Apply** to save your settings.
- 4 Repeat until all the channels have been installed.

Getting started

Topics

[Turning on the EK80 system, page 14](#)

[Starting normal operation, page 15](#)

[Replay data, page 16](#)

[Getting to know the user interface, page 18](#)

[Record data, page 20](#)

[Turning off the EK80 system, page 21](#)

Turning on the EK80 system

In order to use the EK80 system, you must first turn it on. When the system is turned on you can start normal operation, replay data, record data and explore all functionality provided.

Prerequisites

- The EK80 Scientific wide band echo sounder system units have all been installed according to the instructions in the EK80 *Installation manual*.

Caution

You must never set the system to "ping" unless the transducer is submerged in water. Most transducers are damaged beyond repair if they transmit in open air. Prevent inadvertent use of the system whenever a transducer is not submerged.

Context

An overall procedure is provided. This procedure does not describe any detailed tasks. Refer to the relevant descriptions and tasks in this manual.

- *EK80 Reference manual*

You can also find information in the *EK80 Context Sensitive On-line Help*.

Procedure

- 1 Make sure that each transceiver is turned on.
- 2 Start the EK80 program.

Ping is set to *Off* to prevent transmission ("pinging"). This is for safety reasons.

Starting normal operation

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

Context

Note

You must never set the system to "ping" unless the transducer is submerged in water. Most transducers are damaged beyond repair if they transmit in open air. Prevent inadvertent use of the system whenever a transducer is not submerged.

Procedure

- 1 Set **Operation** to *Normal*.
- 2 In the **Normal Operation** dialog box, set the operating parameters.
- 3 Set **Ping Mode** to *Interval*.
- 4 Set **Ping** to *On*.

The EK80 system can be set to "ping" when a transducer is not connected to the transceiver. Dummy-loads for this test purpose are available for purchase.

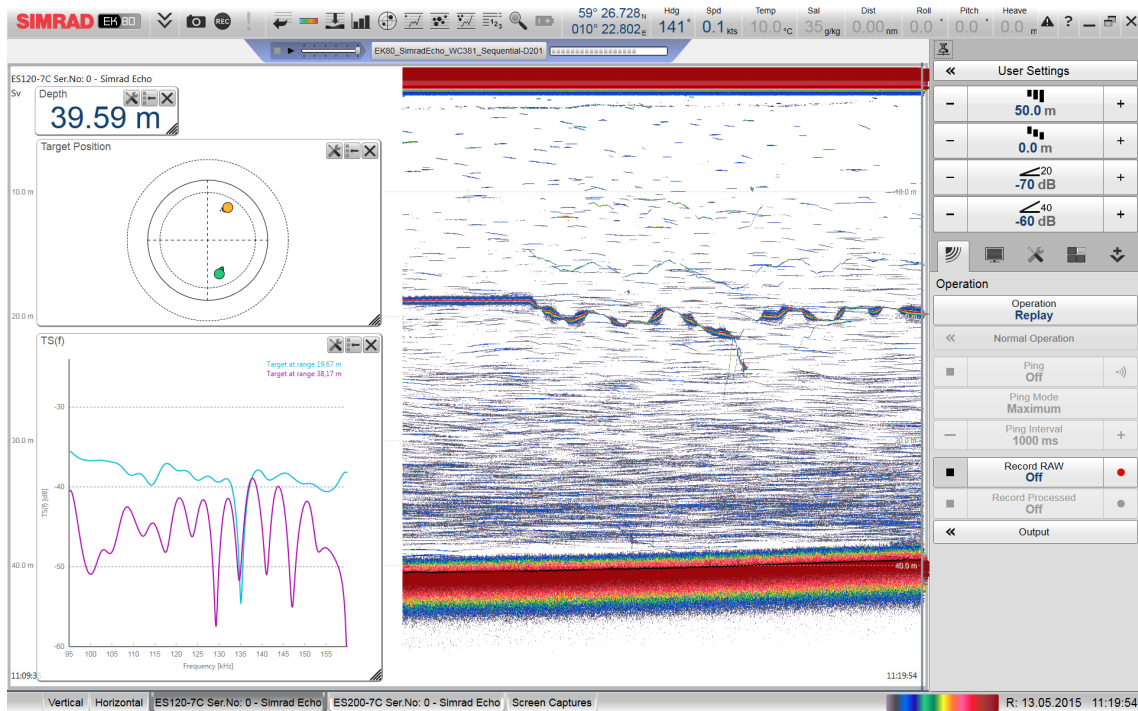
Replay data

Every time you record echo data, the information is stored on the Processor Unit hard disk. Depending on your initial settings, the files may also be stored on a USB hard disk or even a network disk. The echo data files can be retrieved, and played back on the EK80.

Context

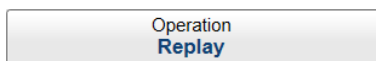
Replay files are downloaded from the system website. These can be used for training and to get to know the system.

- <https://www.kongsberg.com/ek80>



Procedure

- 1 Set **Operation** to *Replay*.
 - a Open the **Operation** menu.
 - b Set **Operation** to *Replay*.

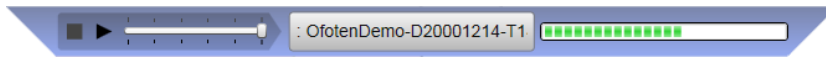


The replay bar opens automatically. It is positioned directly below the top bar at the top of the EK80 presentation.

If you need to select which files to replay, select **Replay File** under the **Operation** button. You can also select the large button in the middle of the replay bar.

- 2 Choose the files to replay.

All playback is controlled by the replay bar.



- a To open the **Replay File** dialog box, select **Operation**.
- b Select **Add** to choose a replay file.
If you wish to replay the selected files in an "endless" loop, select **Loop**.
- c Select **OK** to save the selected settings and close the dialog box.
- d Set **Operation** to *Replay*.

The replay bar opens automatically. Click on the **Play**, **Pause** and **Stop** icons to control the replay function. The ping rate is adjusted by using the slider.

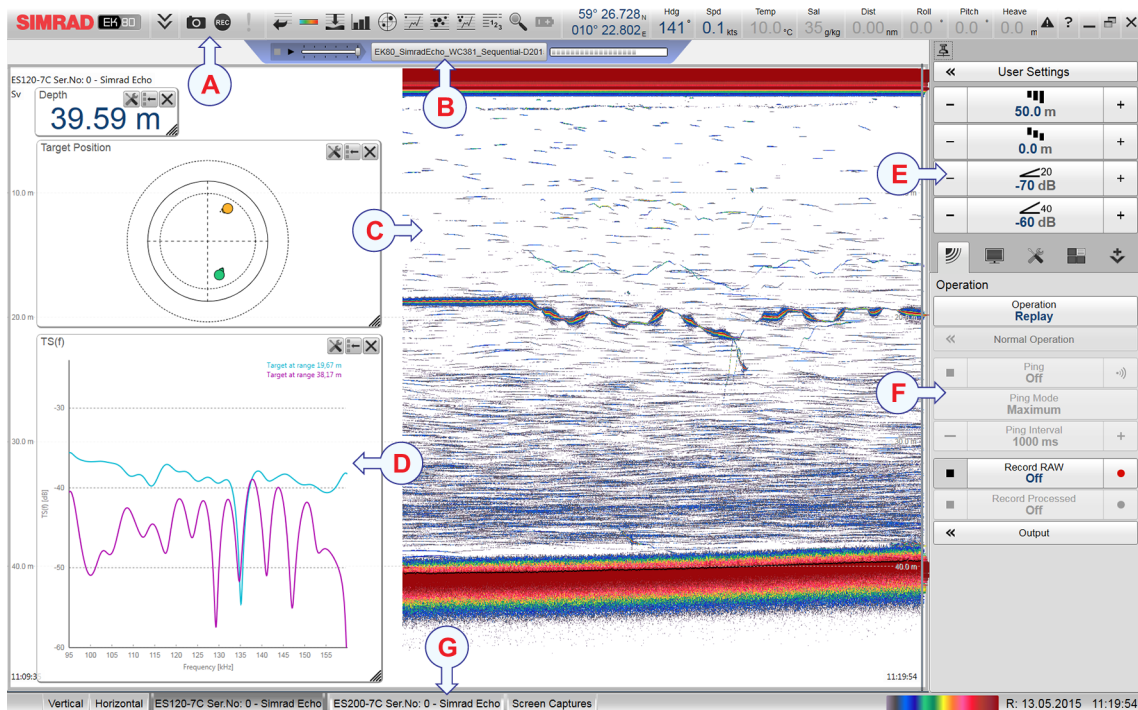
Related topics

[Hardware installation for portable and lab setup, page 7](#)

[Installing the EK80 operational software, page 9](#)

Getting to know the user interface

The EK80 consists of specific visual elements that work together. The visual elements provide you with the echo information you need, they help you to control the functionality needed to understand this information, and finally, they allow you to control the operational parameters. By default, the EK80 presentation covers the entire screen.



- A *Top bar*
- B *Replay bar*
- C *Echogram view*
- D *Information panes*
- E *Main menu*
- F *Secondary menus*
- G *Bottom bar*

Procedure

- 1 Move the cursor to the top bar, and investigate the functions provided.
Observe that small tooltips open to identify the various functions you can use.

The top bar is located at the top of the display presentation and stretches from the far left to the far right. The top bar gives you fast access to key functionality and navigational information.

- 2 Observe the information pane "buttons" on the top bar.

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 buttons on the top bar.

- 3 Move the cursor to the menu system on the right side of the presentation.

The **Main** menu is located at the top of the menu structure. It offers the most common functions for efficient use of the EK80. Below the **Main** menu, a set of dedicated icons are used to open the secondary menus. Select the icon one more time to close the menu.

- 4 Move the cursor to the bottom of the EK80 presentation.

The tabs on the bottom bar allows you to choose channel and presentation mode. A dedicated tab provides a special view for you to see the screen captures you have made. The bottom bar also shows you the current echogram colour scale, as well as the time and date for the last ping. A dedicated tab provides a special view for you to see the screen captures you have made.

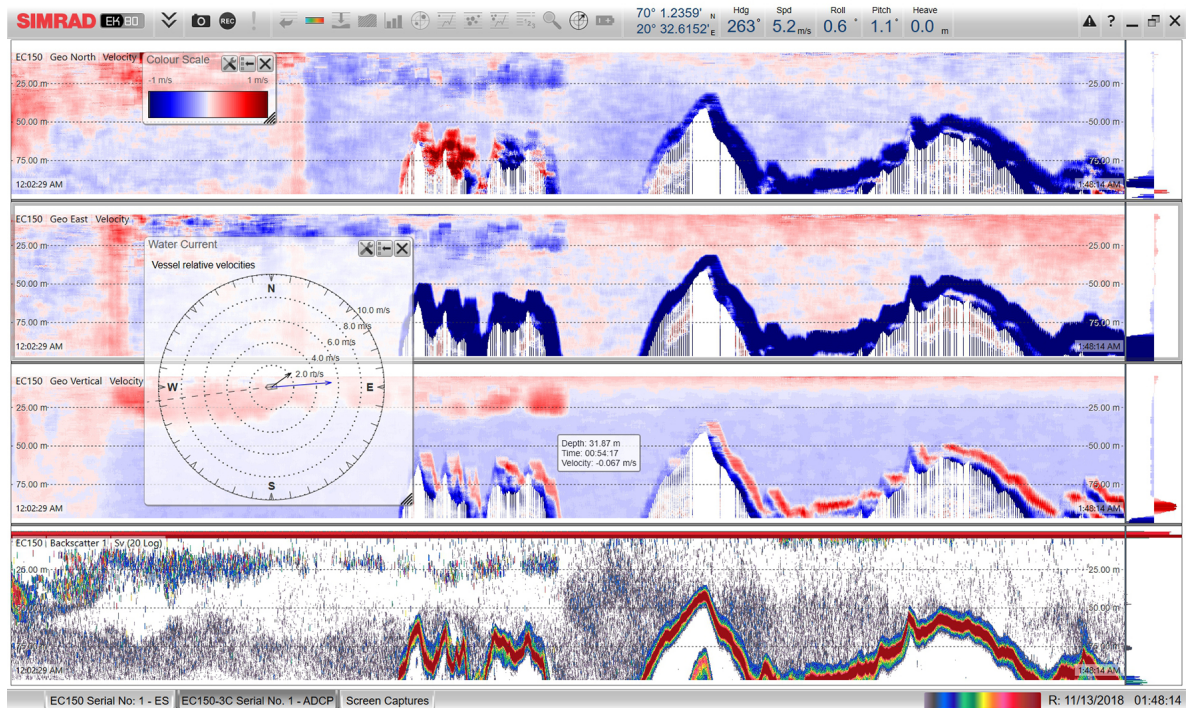
- 5 Move the cursor to the echogram views in the main EK80 presentation.

The EK80 supports several different echogram types. Each echogram is shown in a separate view in the EK80 presentation. The tabs at the bottom of the EK80 presentation allows you to choose which channels to open. You can change the physical size of any view.

Record data

Every time you record echo data, the information is stored on the Processor Unit hard disk. Depending on your initial settings, the files may also be stored on a USB hard disk or even a network disk. The echo data files can be retrieved, and played back on the EK80.

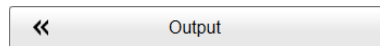
Context



Procedure

- 1 Define file and folder settings for raw data.
 - a Open the **Operation** menu and find the **Output** dialog box.
 - b On the **File Setup** page, define the recording parameters.

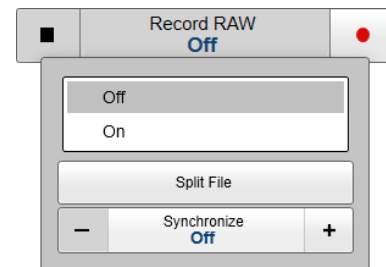
In order to change the output directory, both **Record RAW** and **Record Processed** recording must be set to *Off*. The same folder is used for both raw and processed files.



- c Define a file name prefix. This helps identification of the files later.
- d Define the maximum amount of bytes to be contained in one data file.
- e Specify the raw data recording parameters.
- f At the bottom of the page, select **Apply** to save your settings.

2 Record raw data.

- a Open the **Operation** menu.
- b To start data recording, select *On* or the red circle to the right of the **Record RAW** button. Alternatively, simply select the red circle on the right side of the button.
- c You can record both RAW and processed data using the **Record RAW** and **Record Processed** functions. To synchronize the recording functions, open the **Record RAW** button, and set **Synchronize** to *On*.
- d In case of a special event, you may start a new raw file by pressing Split File.
- e To stop recording, select *Off* or the black quadrate at the right side of the **Record RAW** button.



Alternatively, select the black rectangle on the left side of the button to stop the recording.

Turning off the EK80 system

You must never turn off the EK80 by means of the on/off switch on the Processor Unit. You must always close the EK80 program by selecting **Exit** on the top bar.

Procedure

- 1 Select **Exit** on the top bar.
- 2 If the Processor Unit does not turn itself off automatically, use the functionality provided by the operating system to turn it off manually.
- 3 Turn off each transceiver.



The Wide Band Transceiver (WBT) is not fitted with an on/off switch. You can leave the unit permanently turned on. If you are not using the EK80 for a long period of time, turn off or disconnect the power supply.

Target strength calibration summary

In order to calibrate the EK80, a reference target (calibration sphere) with known target strength (TS) is lowered into the sound beam. The measured target strength is compared with the known target strength of the sphere, and the EK80 is adjusted accordingly. We strongly recommend that calibration surveys are done at regular intervals. As a minimum, calibration must be done prior to each survey. A summary of the target strength calibration process is provided.

Prerequisites

In order to calibrate the EK80, the following equipment is required.

- Calibration spheres: The calibration spheres must be chosen to match the operational frequencies used by the EK80 system.
- Winch arrangement: The winch arrangement must provide the necessary lines to lower the sphere into the sound beam.

The vessel must be anchored in a suitable position with sufficient depth, calm and sheltered water, and minimum sea currents.

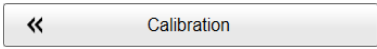
Note

Each calibration sphere must be handled with care to avoid any damage to its surface. When not in use, store the sphere in a household soap solution. All suspension lines must be as thin and clean as possible. Limit knots to a minimum, and keep them small. Even knots have strong echoes!

Kongsberg Maritime can supply a variety of copper and tungsten calibration spheres dedicated for different operational frequencies.

Procedure

- 1 Prepare the vessel or test setup for EK80 calibration.
- 2 On the **Operation** menu, set **Operation** to *Normal*.

- 3 In the **Normal Operation** dialog box, set up the operating parameters for the channel you wish to calibrate.
- 4 Turn other channels to passive.
- 5 Lower the sphere into the beam at the specified depth. Verify that the echoes are clearly detected.
- 6 On the **Operation** menu, open the **Record RAW** button, and select *On*.
- 7 On the **Setup** menu, select **Calibration**.
- 8 On the first page of the wizard, select **New calibration from raw data (Real time or Replay)**. 
- 9 Select **Next** to continue.
- 10 On the *second* page of the wizard:
 - a Select the channel to be calibrated.
 - b Select **Next** to continue.
- 11 On the *third* page of the wizard:
 Select the sphere to use in target strength calibration. You can also add a new sphere if it is not listed.
- 12 On the *fourth* page of the wizard:
 - a Make the necessary preparations to record calibration data.
 - b Select **Start** to start echo data import.
 - c When the appropriate number of echoes have been imported, and the coverage plot is all green, select **Stop**.
 - d Stop importing echo data. Stop the recording.
 - e Select **Next** to save and proceed.
- 13 On the *fifth* page of the wizard:
 - a Remove echoes you do not wish to use in the calibration, like echoes from fish.
 - b Select **Reprocess** to run the calibration processing.
 - c Select **Save** or **Save As** to save the calibration data.
 - d Update the calibration used by the echo sounder using **Merge** or **Replace**.
- 14 Close the **Calibration Wizard** dialog box, and resume normal operation.
- 15 Open the *Numerical Pane* view from the Top bar and check that the transducer gain match the calibration result.

Further requirements

Repeat the procedure for each channel you wish to calibrate. Repeat the procedure for each CW pulse duration you wish to calibrate. Repeat the procedure if you wish to calibrate with FM pulse.

Get more information

Topics

[Opening the context-sensitive online help, page 25](#)

[End-user documentation, page 26](#)

Opening the context-sensitive online help

Installed on your EK80 you will find a comprehensive context-sensitive online help system. Everything you can read in the EK80 Quick start guide can also be found in the online help. The online help can be opened from all dialog boxes in the EK80 user interface. You can also use the **Help** button on the top bar.

Context

Note

The context sensitive online help may not be available for the language you have chosen for the user interface. If your language is not supported, the English help is provided.

Procedure

- 1 Select **Help** on the top bar.
- 2 Select **Help** in the top right corner of each dialog box.



End-user documentation

End-user documentation provides full information regarding installation, operation and maintenance of the EK80 system. It is available at:

- <https://www.kongsberg.com/ek80>

©2020 Kongsberg Maritime