

e+ CONTROL

OPERATING INSTRUCTIONS



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On these operating instructions



When the symbol shown on the left is placed before a piece of text, this means that an important instruction follows.



When the symbol shown on the left is placed before a piece of text, this means that an important warning follows pointing out a risk of injury to the user or damage to the device. The user is always responsible for its own personal protection.

Text

Text in italics means that the actual text is shown on the display screen.

1. Introduction

The e+ CONTROL is a handy and robust field instrument for programming and reading out all of the e+ sensors, including the e+ WATER L, e+ SOIL MCT, e+ RAIN and e+ OVERFLOW and Divers bij Schlumberger Water Services. It is a splash-proof device that can communicate with the e+ sensors through an e-SENSE cable (art. no. 11.31.70 - 11.31.77). The e+ CONTROL can read out a sensor with a single press of a button and store the measurement values in a file that can be simply transferred via USB to the PC later. This file can be directly imported into e+ software (art. no. 11.11.14) or other software to visualise and further process the data. Its large storage capacity allows 1000 e+ sensors to be read problem free. The instrument can be adjusted to various user levels.

1.1 Functionality

In short, the e+ CONTROL has the following functionality:

- reading out a sensor
- starting up and stopping a sensor
- programming a sensor
- storing data files

2. Getting started

This chapter explains how you can immediately start to read out an e+ sensor.

2.1 Preparing for use

Before you can use the e+ CONTROL, you first need to install the batteries.

- Remove the cover at the back: unscrew the two screws using a crosshead screwdriver.
- Insert 3 AA batteries. Ensure that the polarity of the batteries is correct.
- Reinstall the cover and screw the screws back in.
- Turn on the e+ CONTROL by briefly pressing the 'on' button.
- The welcome screen is displayed followed by the date and time of the e+ CONTROL, after clicking the main menu is displayed.

The e+ CONTROL is now ready for use.



2.2 Reading out an e+ sensor

The main functionality of the e+ CONTROL is the fast and simple reading out of an e+ sensor.

Reading out in the field with an e+ CONTROL	
Diver on steel wire	Pull up Diver and use cable 11.31.82.00 to read out
MiniDiver, Cera- and MicroDiver, Baro (1-eye on DDC cable 11.11.48.nn)	Communication cable DDC - e-SENSE 11.11.47.02
MiniDiver, Cera- and MicroDiver, Baro (1-eye on e-SENSE cable 11.31.82.nn)	Direct connection to e+ CONTROL
CTD-Diver and "old" Divers (11.11.50 till 11.11.54) (on 2-eye DDC 11.11.70-78)	Communication cable DDC - e-SENSE 11.11.47.02
CTD-Diver and "old" Divers (11.11.50 till 11.11.54) (on 2-eye e-SENSE cable 11.31.80.nn)	Direct connection to e+ CONTROL
e+ sensors stand alone	e-SENSE cable e+ sensor length 1 m 11.31.81.00

2.2.1 e-SENSE cable

The e+ CONTROL is equipped with a e-SENSE cable connector to which a e-SENSE cable can be attached.



e-SENSE cable connector

2.3 Reading out a sensor

When the e+ CONTROL main menu is displayed, press the wizard key.

The e+ CONTROL will now contact the e+ sensor. As soon as contact has been made, the sensor starts to be read out. It can take up to several minutes to read out a sensor that has a very full memory. After successfully completing the read out, an overview window is displayed showing the information concerning the data that have just been read out. Furthermore, a MON file is automatically created containing the measurement data.



Wizard key

2.4 Processing the measurement data

After reading out the sensor(s) the data must be processed. To do this, the e+ CONTROL is connected to the PC using a standard USB cable. When the USB cable is connected, the e+ CONTROL can be set to USB mode by pressing the wizard key. This mode can be recognised by a screen showing a picture of a USB plug. When an e+ CONTROL is in USB mode, it will behave like a memory stick and the stored data files can be easily accessed using Windows Explorer. The files can then, for instance, be imported into e+ software (art. no. 11.11.14). Exit the USB mode by pressing the escape key.



USB-mode



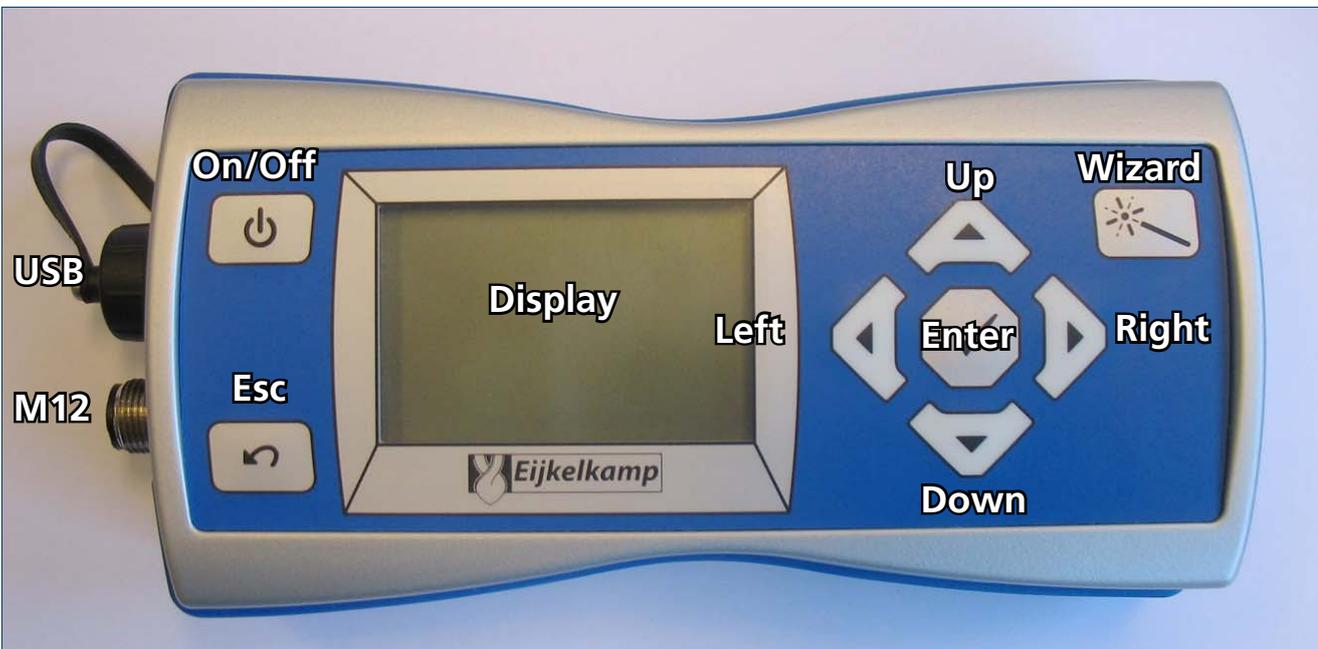
Escape key

3. Description

This chapter describes in detail how to operate the e+ CONTROL and how to use its functionality.

3.1 Operation

The e+ CONTROL is equipped with a number of operating keys:



- On/off:
 - Switch the e+ CONTROL on and off
- Escape:
 - return to the previous window
 - cancel an operation by leaving the window without accepting the modifications
- Up:
 - move the cursor up
 - select next character while making modifications
- Down:
 - move the cursor down
 - select previous character while making modifications
- Left:
 - position the cursor on the previous letter while making modifications

- ❑ Right:
 - position the cursor on the next letter while making modifications
- ❑ Enter:
 - activate the selected menu item
 - accept the modification
- ❑ Wizard:
 - start reading out a logger
 - set the e+ CONTROL to USB mode after connecting it to the PC
 - advanced processing options

The e+ CONTROL displays various types of window:

- ❑ The standard window is displayed most frequently. This window displays a list of menu items and settings.
 - A menu item can be recognised by the dots at the end of the line.
 - The selected item in the list is shaded, this is called the cursor.
 - The cursor can be moved up and down by pressing the keys.
 - The selected item can be activated /modified by pressing the enter key.
- ❑ If a setting is modified, this is done in a processing window.
 - If applicable, the cursor can be moved to the previous and next letter by pressing the left and right keys.
 - The value can be amended by pressing the up and down keys.
 - Special characters such as é, ç and Ø can be entered by using the setting 'special characters' .
For more information see page 9.
 - Advanced processing can be carried out - if applicable - by pressing the wizard key.
After pressing the wizard key, it is possible to:
 - Remove a letter by pressing 'left'.
 - Insert a space by pressing 'right'.
 - Change a lowercase letter to uppercase by pressing 'up'.
 - Change an uppercase letter to lowercase by pressing 'down'.
 - The advanced processing mode can be exited by applying a modification or by pressing the wizard key once more.
 - The modification is applied by pressing the enter key.
 - The modification is ignored by pressing the escape key.
- ❑ The request window asks for confirmation before a certain action can be taken
 - 'No' is selected as standard.
 - The cursor can be moved by pressing the 'left' and 'right' keys.
 - Pressing 'enter' causes the selected answer to be executed.
 - If 'escape' is pressed the answer is no.
- ❑ The result of an action is shown in a result window. None of the displayed items can be modified. This window is exited by pressing the escape key.
- ❑ The Communication window displays how the attempt to communicate with the e+ sensor is progressing. Communication is subdivided into a number of steps. Each step is ticked when successful. This process can be interrupted by pressing and holding the escape key. The steps are discussed in more detail below:
 - *Make connection*; This is indicated by 'wire ←'.
 - *Start communication*; after contact has been made, a check is made to determine whether the e+ CONTROL responds correctly.
 - *Read settings*; the settings of the e+ sensor are now read out. This can take some time.
 - *Read measurement*; the measurement values are read out, progress is shown as a percentage.
 - *Write settings*; the changes in the settings are written to the sensor.
 - *Disconnect*; communication has been successful and will now be terminated.
- ❑ The file overview window can be used to easily find a file that must be deleted.

The e+ CONTROL has various modes:

- BASIC: only the basic functionality is available
- ADVANCED: all functionality is available
- HAND: a sensor can be tracked in the window

The e+ CONTROL's mode can be changed in the settings. (See 3.2.5)

When leaving the BASIC mode one is asked to fill in a password, this is identical to the serial number.



When the e+CONTROL does not react on pushing any button, a re-start can be forced by pushing the on/off button during ten seconds.

3.2 Functionality

3.2.1 Reading out e+ sensors

The main functionality of the e+ CONTROL is the fast and simple reading out of a large number of e+ sensors.

Reading out can be started in two ways:

1. Press the wizard key when the main menu is displayed.
2. Select "Read sensor ..." from the main menu, followed by "Read completely ..." in the submenu.

In both cases the result is the same, the sensor is read out completely and a MON file is created.



When reading out with the wizard key a stop and future start takes place. All data are removed from the logger and the date/time of the logger can be synchronized.

After an e+ sensor has been successfully read out, an extra menu option is displayed: Logged data statistics. During reading out, the e+ CONTROL only determines the minimum, maximum and average measurement value for Channel 1. This information can be requested via the additional menu item.

3.2.2 Processing the measurement values

The measurement values that have been read out are automatically stored in MON format files. It is not possible to open these files using the e+ CONTROL. If you wish to open them, the e+ CONTROL must first be connected to a PC using a USB cable. The files can then be opened on the PC and processed further. The naming convention of the files is:

<serial number>_<location>_< YYYYMMddhhmm >_till_< YYYYMMddhhmm >.MON

- YYYY stands for year
- MM for month
- dd for day in the month
- hh for the hour in a 24-hour format
- mm for minutes.

19:17 on 16 April 2008 is written as follows 200804161917.

3.2.3 Carrying out manual measurements

It is possible to store manual measurements in the e+ CONTROL. When a sensor is connected to the e+ CONTROL location and serial number are read out automatically and are displayed. In the 'Read sensor ...' menu it is possible to store a manual measurement. The e+ CONTROL will automatically enter the date and time, which can be amended later if required. The manual measurement is stored in a text file. The measurement data must be manually entered into the processing software later. The unit of a manual measurement is set as standard to centimetres and cannot be amended.

3.2.4 Changing sensor settings

It is possible to change the settings in the e+ sensor. Only the relevant settings are displayed. The settings can be inspected and if desired changed by selecting "Sensor settings ..." in the main menu. The e+ CONTROL will read in the current settings and display them in a new window. The settings that can be changed are:

Setting	Locatie:
<i>Location</i>	Sensor settings
<i>Sample rate</i>	Sensor settings
<i>Altitude</i>	Sensor settings
<i>Offset</i>	Sensor settings
<i>Synchronise RTC</i>	Sensor settings
<i>Identification</i>	Sensor settings → Channel setting
<i>Unit</i>	Sensor settings → Channel setting
<i>Alarm high</i>	Sensor settings → Channel setting → Alarm
<i>Hysteresis high</i>	Sensor settings → Channel setting → Alarm
<i>Hysteresis low</i>	Sensor settings → Channel setting → Alarm
<i>Alarm low</i>	Sensor settings → Channel setting → Alarm
<i>Threshold width</i>	Sensor settings → Channel setting → Threshold values
<i>Threshold level</i>	Sensor settings → Channel setting → Threshold values
<i>Switch level</i>	Sensor settings → Channel setting → Threshold values
<i>Reference level</i>	Sensor settings → Channel setting → Threshold values
<i>Delay factor</i>	Sensor settings → Channel setting → Threshold values
<i>Output coëfficiënt</i>	Sensor settings → Channel setting → Threshold values

The changes are only made when the 'sensor settings' window is exited.

The e+ CONTROL first requests confirmation. An exception to this is the synchronisation of the time, this setting is only changed when the sensor is started.



Always check date / time of the e+ CONTROL before a RTC synchronisation.

3.2.5 Changing e+ CONTROL settings

It is also possible to change the settings of the e+ CONTROL by selecting in the main menu 'e+ CONTROL settings ...'. These settings are:

<i>Display settings Contrast</i>	Displays the contrast of the window, the higher the number the greater the contrast.
<i>Display settings Backlight</i>	Indicates how long the light of the display stays lit after a key is pressed
<i>Language</i>	This can be used to select the language, currently Dutch, English, German, French and Spanish can be selected.
<i>Special characters</i>	In some cases it is necessary to use a special letter, such as the é or ï in a name. Using this setting, the special letters can be switched on or off.
<i>Conv. to abs. values</i>	Measurement data of older type loggers are converted to the new way of noting measurement data.
<i>Sample rate</i>	Indicates the interval during which (in manual mode) the sensor is asked to provide the last logged value.
<i>Mode</i>	Mode Indicates the various modes that can be used: - ADVANCED: all functionality is available - BASIC; a limited subset of the functionality is available. - HAND; in this mode, the e+ CONTROL, with an interval as set in the e+ CONTROL, reads out the connected sensor and shows the latest values on the display.
<i>Date / Time</i>	Local date and time of the e+ CONTROL.
<i>Vibration</i>	Turns on or off the vibration function.

Changes are applied immediately.

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