

## Quick guide - LTL-X Retrometer

### Getting started

#### Height adjustment

Before using LTL-X notice that the operating panel can be adjusted in height for ergonomic considerations. The height is adjusted by pressing the red knob on the front of the instrument and at the same time lifting the handle on the operating panel. Release the knob and continue lifting until the handle locks.


#### Measuring

Turn on the LTL-X by pressing and holding the ON/OFF button  until the welcome display starts to show. The display will then change to the measure mode.


An exception is when the instrument is set to ask for user identification, **see User select**.

Calibrate the instrument if necessary, **see Calibration**.









Place the instrument on the road marking.

Press the big green OK-button  to take a measurement. A measurement will be finished in approx. 1 sec.


When the measurement is complete, the RI value will be displayed. Data are automatically transferred to the data log. If there is a problem with the measurement a warning or an error icon will pop up (**see Warnings and errors**) and an audible alarm will sound (if enabled, **see Sound**).

To printout the last measurement data, press the PRINT/OUT button .

#### Buttons

|      |                                                                                     |                                                                                                                                                                             |           |                                                                                       |                                                                                                                                                                  |
|------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HELP |  | Presents a context sensitive help text. Another press on the button will open up a general help menu.                                                                       | ON/OFF    |  | Is used to turn the apparatus ON or OFF. Press the button to turn on the instrument. To turn it off press the button until the display shows a farewell message. |
| MENU |  | Selects the top level of the menu tree. Use UP and DOWN to scroll through the menu items. Press OK to select.                                                               | SMART     |  | This button is user programmable to one of several functions, e.g. to clear the last measurement.                                                                |
| HOME |  | Will bring you back to measure display.                                                                                                                                     | CALIBRATE |  | Starts the calibration wizard.                                                                                                                                   |
| BACK |  | Is used to go backward one step in the menu canceling new settings, which has not yet been confirmed by the OK button. In some cases the LEFT button has the same function. | PRINT/OUT |  | This button will print out the last measurement or selected parts of the log to the internal printer or send data to the communication port.                     |


#### User select (user initials)

If a user icon  is shown in the top line of the display then from the measure display press ▲ and ◀ or ▶ buttons to mark the user icon. Press the OK button to enter the user select menu.

Else, press the MENU button and select **SETTINGS/USER/SELECT**. Select a user and press OK.

From the measure menu press ▲ to mark the user icon. Press OK to enter the **USER SELECT** menu.

#### Series id select (name)

From the measure display press ▲ to mark the road icon . Press the OK button to enter the series id select menu. To deactivate the series id press MENU and select **SETTINGS/SERIED ID**. Now select **ACTIVATE** and use OK to change to **OFF**.

## Calibration


There are two kinds of calibrations, a field calibration (red calibration unit) and a traceable calibration (black calibration unit). Please refer to the manual for an explanation of these two calibrations and when to perform them. On routine basis, a transfer of the calibration value from the traceable reference block should be performed. Please refer to the manual on how to do this.

Two steps are required for a complete calibration, *zero calibration* and *reference calibration*. The apparatus will guide you through the procedure.

### Calibration procedure.

Before a calibration make sure that the calibration unit is clean.

- *Zero calibration*

Press the CALIBRATION button . Mount the calibration unit underneath the front end of the instrument. This is done by tilting the instrument slightly backward and then placing the unit. Make sure that the pins on the side of the unit fit into the holes in the LTL-X.

Press the OK button to start zero calibration. During calibration the lamp will flash a number of times.

- *Reference calibration*


Now the instrument is ready for the next step and the display will tell you to rotate the calibration unit. Again it is important that the pins on the side of the unit fit into the holes in the LTL-X.





Check and if necessary correct the calibration value shown in the display so it matches the value stamped on the calibration unit.

Press the OK button to finish the calibration.

The calibration procedure is now done. Remove the calibration unit and store it properly. Press OK to return to the measurement display.

## Miscellaneous

The measure display can at all times be activated by pressing .

- Reset log: Press the MENU button  and select **LOG/CLEAR DATA/ALL**.
- Date and time: Press the MENU button and select **SETTINGS/DATE & TIME**. Use ▲ and ▼ to set the time and date. Accept the setting by pressing the green OK button.
- Power save: Press the MENU button and select **SETTINGS/AUTO OFF**. Use ▲ or ▼ to edit the auto turn off time. Accept the setting by pressing the green OK button.
- Sound: Press the MENU button  and select **SETTINGS/SOUND. SELECT KEY CLICK** or **SOUNDS** to set the individual sound levels for key click and warning/error sounds. Use ▲ or ▼ buttons to set the levels. Accept the setting by pressing the OK button.
- Warnings and errors: An error icon  or warning icon  will be displayed in the top line of the display if a problem is detected when a measurement is taken. Press ▲ to get a description of the most severe error or warning. Now press the OK button to display a total list of all errors or warnings related to the measurement.