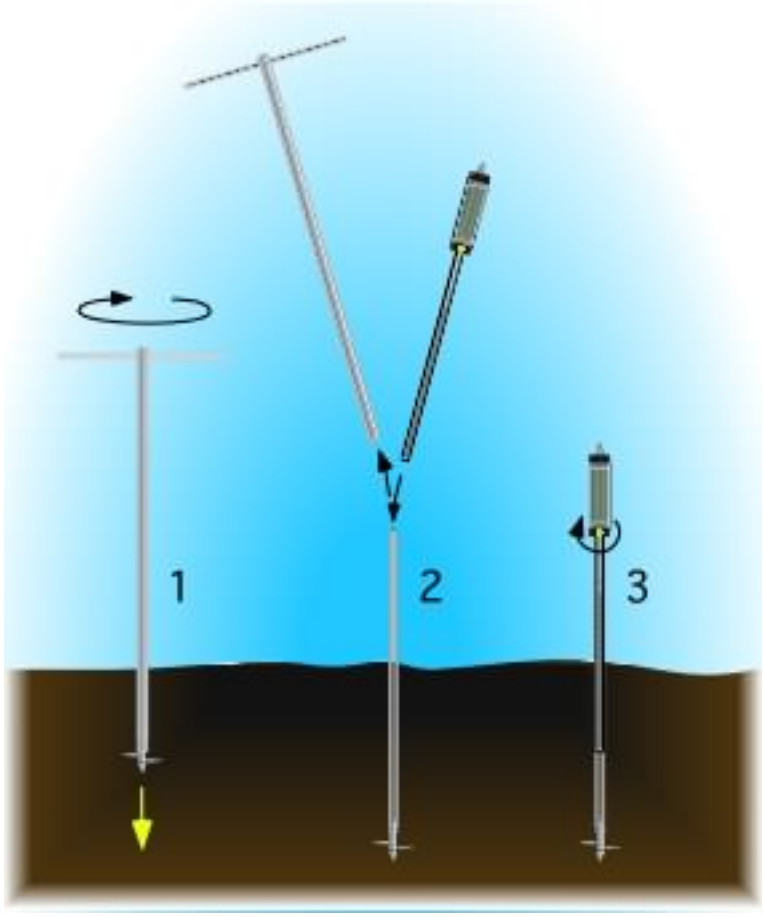
SediMeter User Guide



- Screw the outer tube to the steel anchor screw
- Insert the handle bar in the hole of the handle tube and secure with the pin
- Set up the SediMeter and make sure the o-rings are clean and greased
- Use the handle tube to screw down the anchor counter-clockwise (**CCW**)
- Remove handle, insert SediMeter
- Tighten the screw barely enough so the SediMeter can not slide up
- *Retrieving*: first create a depression to the lowermost OBS to prevent scratches
- Remove the SediMeter, and if the tube is not loose already…

Put on the handle and screw the anchor up clockwise (**CW**)

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Document Scope

This is a quick guide for the SediMeter and LogDator instruments rev. 2.5, and the SediMeter™ software, ver. 2.5, with the new (optional) cleaner motor LM-30.

Document Version

Rev. 2.5,2, 2012-07-01.

Legal Notice

Refer to complete manuals for warranty and copyright information.

Installation

Insert the CD and follow the instructions. Do not change the default directories, as it may prevent the software from working properly. You will get warnings that the software has not being certified; this is normal (it would be cost prohibitive to certify the software, since every time a minor update was made it would have to be re-certified).

Installing USB drivers

Locate the setup file identified in the ReadMe document, and double-click it. Again, you may get warnings (at least under Vista) that the drivers have not been certified; this is normal.

USB drivers are not required for using the software with SediMeter instruments that do not support USB.

Using the software

The software SediMeter.exe is free, but a password protects Recalibration of instruments. The password is available to persons trained in recalibration only. If you have a password, write it here:

Recalibrate password: _____

Anyone can use the software to view data. Data can be stored on a memory card (SD/MMC max 2 GB), or downloaded from the internal memory of the instruments. You can open data files, view data, and export data.

You can additionally set up the instrument for logging, download data from the internal memory, and run a real-time monitoring network. You can even set it up as a web server so that data are viewable remotely in near real time.

The recalibrate password gives you access to the wizards for recalibrating instruments. They are password-protected to prevent un-authorized changes.

Using a stand-alone instrument

Preparing a SediMeter for deployment as stand-alone logger

Put in batteries and verify that the display shows remaining space in the internal flash memory. If you plan to store on a memory card, insert it and verify that the display shows "MMC Card Mounted". Depending on whether you are setting it up using the built-in display or the PC software, proceed with the appropriate instructions below. SediMeters and LogDators are similar, but the features of both vary depending on model.

Alt. 1, using the built-in display

1. Press the NavPin to turn on the display; it reads "Lindorm LogDator"
2. Click right through the menu system, skip RS485 ID but set Date, Time, Interval, and Next [measurement] At (set all in UTC)
3. Verify that "Store On" says "Flash" or "Card" as appropriate
4. In the "Flash" menu, you may mark used data as "Read" (i.e., they may be overwritten), or alternatively, you can erase all data
5. In the "Card" menu, you can delete all files and folders on the card (it is recommended to start with an empty card, but you can also do this in the PC)
6. Set the number of analog samples per measurements in the "Samples" menu (typically 84 if any optional sensor is present, otherwise 0)
7. Set the rate of these samples in the "Rate" menu (if an optimal value is set already, select "NoChange")
8. Skip the "SlaveOpt", "NetList", and "Sleeping Pill" menus (hint: if you want to make sure that the measurement interval is sufficient, select RollCall in NetList and then go back to the Interval menu and verify that it has not changed)
9. If you have a cleaner, set the Wipe/Int value. Example, to wipe the sedimeter sensor once every 20 measurements, set Wipe/Int to "1/20". Set to "1/00" to turn it off. [NB: Since a cleaning can take more than one minute, don't use a measurement interval shorter than 2 minutes when using a wiper.]
10. In the "Mode" menu, select "Logger"
11. Go right, and the menu will show CPU temperature and system voltage
12. Go right again, and the first line will show the Next time, while the second line shows the actual time
13. Click select on this or the previous menu to turn off the display

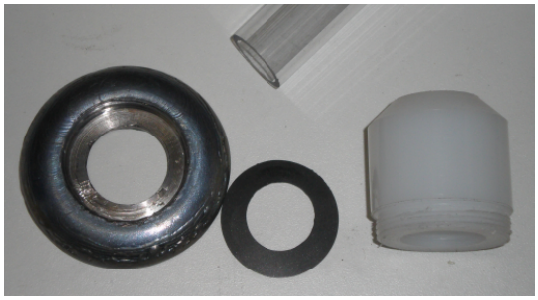
Alt. 2, using the PC software

1. Connect the SediMeter to the computer using either USB or RS-485
2. Start SediMeter.exe
3. Select the [virtual] serial port that the SediMeter is connected to (e.g., COM1)
4. Select the connection type, USB or RS-485; in the latter case also select instrument NetAddr in the Send To field at the bottom of the window

5. Click Connect and enter the connect password; a change in appearance of the button indicates success
6. Click on the Setup tab
7. Enter start time in UTC to any time within the next 24 hours (00:00:01 < hh:mm:ss < 23:59:59)
8. Enter measurement interval (00:00:01 < hh:mm:ss < 23:59:59)
9. Optionally enter burst sample interval (in units of 1/32756 s) and count (from 0 for none, to 84), making sure that the burst sampling is finished before the next measurement starts
10. Click Set to send the settings to the connected SediMeter
11. Click Get to read the settings back; the time difference indicator should now show 0
12. If you have a sedimeter sensor cleaner, click the Wiper tab, set the wiping interval (i.e., how many measurements between cleanings), set how many measurements until the first cleaning, and click Set
13. Click the Special tab
14. Select Log Mode
15. Click Set
16. Click the Connect tab
17. Click the Connect button to free the COM serial port
18. Disconnect the SediMeter

Preparing the optional sensor cleaning wiper LM-30

1. Due to continuous wear it is recommended to overhaul the cleaner before each new deployment. Start with discarding the old line, remove, disassemble, and clean the wiper



2. Inspect the inside of the upper end of the white plastic in the wiper: If the lip is not white it needs cleaning (use any method compatible with UHMW; if nothing else works, you may have to remove a small amount of material using 600 grit or finer sandpaper). Test so it slides freely but without noticeable play on the holder tube.
3. Inspect the rubber washer and replace if it looks worn. Assemble between lead nut and plastic screw, tighten loosely. Place wiper on holder tube. Gradually tighten more until it starts to stick rather than slide freely. Loosen a quarter to half a turn.
4. Place wiper on SediMeter sensor, attach a new line (about 50 cm of 0.35 mm monofilament fishing line) by pulling it through the holes in the wiper and the reel, making a stop knot in each end, and placing the line in the line guide.
5. Put the SediMeter in the holder tube, and place it vertically

6. Turn on the SediMeter display, go to the Wiper menu, click Select
7. Using the NavPin thumb button you can now manually run the wiper up and down (press "left" [which is down when in this position] to run down, and "right" [which is up in this position] to run up; don't run it into the motor house, and don't run it so far down that the line starts winding up backwards on the reel)



8. Lower it to the end of the sensor, making sure that the line stays taught and that the wiper does not stick, and pull it back up again to ca 20 to 30 mm above the topmost OBS detector. Turn off the menu.
9. For storage, place a 20 mm tube through the wiper to center it, and to the extent possible, maintain the instrument vertical so that minimal pressure is applied to the wiper rubber.

Deploying a SediMeter

1. Make sure the O-rings and O-ring groves are clean and that O-ring grease has been applied
2. Close the SediMeter with a moisture absorbing bag inside
3. Screw the outer (holder) tube onto the stainless anchor screw
4. Keep an eye on the SediMeter while submerging it to make sure there are no leaks
5. Mount the handle over the anchor screw and screw it down to the predetermined depth (a ring of masking tape can be put on the handle tube before the dive)
6. Carefully pull the handle straight up after freeing it from the bayonet
7. Carefully insert the SediMeter straight down so it does not get scratched
8. Tighten the yellow screw just enough to barely hold the SediMeter in place

Setting up a Network

Assign one unit—typically a LogDator—as the master logger. Prepare all the other units (typically SediMeters). Deploy them, either with cables connected or connect the cables after they have been put in place. The final step depends on whether the master unit is above water or not.

Master logger above water

- Plug in the master logger.
- Connect power.
- Insert a memory card and make sure it is mounted.
- Set up the clock and other parameters, going through the menu from left to right (or use a computer connected via USB).
- Do a Roll Call, and verify that the instrument count is correct (it should include the master itself).
- If you are uncertain about the measurement interval being too short, return after the roll call to verify that the Interval has not changed (it will automatically increase if required).
- Set Sleeping Pill to On.
- As the final step switch mode to Master mode. This will trigger the creation of files on the memory card and send the slaves to a low-power state.
- Switch off the display before closing the house.

Master logger below water (or in another hostile environment)

- Put batteries in the master logger so it powers up.
- Insert a memory card and make sure it is mounted.
- Set up the clock and other parameters, going through the menu from left to right (or use a computer connected via USB).
- Set Sleeping Pill to On.
- Close the house.
- Connect the master logger to the network.
- Connect power to the network.
- Switch on the display using a magnet.
- Step through the modes to Master mode using a magnet. This will trigger first a Roll Call, then the creation of files on the memory card.
- Keep your eyes on the display to verify the instrument count, and that there is no error reported before the display turns off. The final message should be “Mode – Master”

Battery check

At any time one can turn on the display to show temperature and battery voltage by approaching a magnet to the reed switch. After showing these values for a few seconds the display will switch to show the mode, before turning off automatically.

Interrupting logging for switching card (and maybe batteries)

This is a controlled way to change cards in network logging:

- Open the house and turn sleeping pills off
- Set the display to show Next and Actual time
- The display will show when it is measuring.
- When the measuring is over the slaves will be awake so that you can replace the card and set up measurements with a new card as described above.

If your master logger is under water your only choice is to unplug it first, as follows:

- Unplug the master logger
- Bring it to the surface and open it
- Turn on the display and check how long time remains until the Next measurement; until that time comes, the slaves will not wake up, and until they do, the new sequence cannot be started
- Remove the old card, insert a new, and proceed as above, but do not switch to Master mode again until AFTER the Next time from the previous sequence has passed

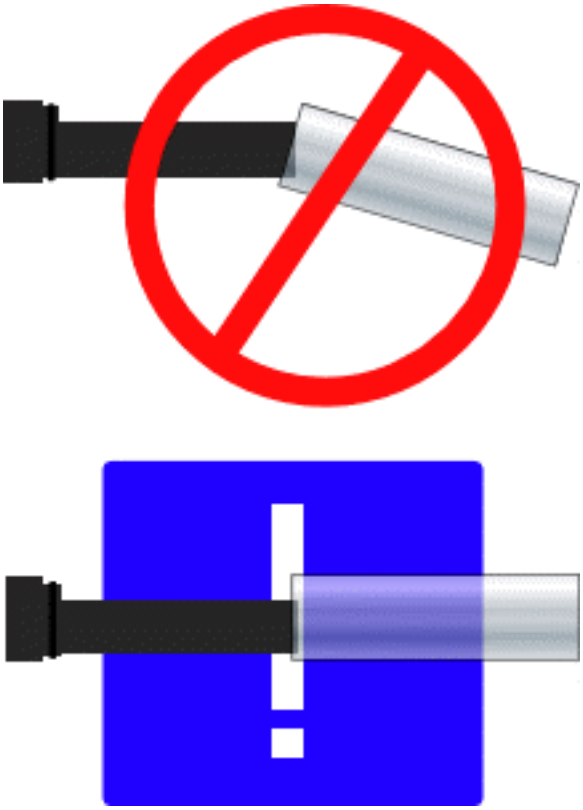
The network can be powered by an external battery pack, or even solar panels. One way to force the slaves to wake up is through a power-down reset. However, due to their very low power drain, and large backup power reserve, a power-down has to last well over half an hour to have an effect (to be certain, leave the power off for an entire hour). Thus, in most cases the measurement interval is shorter, and so they will wake up sooner by themselves.

Radio LEDs

The radios connect in the RS485 network and replace a segment of cable. They operate in the 2.4 GHz band, an international ISM band that does not require a license. Specific systems may include a radio modem connected to a host PC, thus enabling real-time wireless monitoring. On the instrument side, the instrument may control the radio power in the same way as the power to the RS485 network.

The network master sends out a sleeping pill to turn off power to the slave's radios after each measurement. This causes the yellow power LED to turn off. If the instrument does not receive the sleeping pill, the radio will go into cyclic sleep to save power, indicated by a blinking LED. Two seconds before the next measurement the power is turned on again. At first the LED will blink, but when the first command is received from the master they will shine steadily. A green LED indicates that the radio is receiving commands. When it sends data the yellow LED may turn off briefly. If the voltage level to the radio falls below a critical level a red LED will light up. If an LED is blinking between measurements the instrument uses up the battery about 30 times faster than in actual sleep. Take the blinking as a sign that the communication is marginal, or that new batteries may be needed.

Opening and closing



WARNING!

NEVER tilt the cylinder DOWN when sliding the end of it over the frame!

- The corners of the stainless steel panel may scratch the inside of the cylinder just at its mating surface, thus causing it to leak.
- It is OK to gently slide the cylinder against the black plastic frame, since they are made of the same material why neither will scratch the other.

Don't

Do not leave the instrument connected to USB for an extended period of time without taking out the batteries. (Connecting to USB increases the power consumption, but as long as the batteries are installed the power is taken from them instead of from the USB cable.)

Do not leave a network slave with the display showing temperature and battery after starting measurements. The updating of the display may conflict with the collection of data for the network master. If the slave freezes you may have to reset it with the reset button.

Don't insert batteries and leave the instrument like that – instead, change it to Sleep mode before you leave it with batteries inside.

Further Information

Connect to www.lindorm.com/downloads.html for the latest

- Manuals
- Drivers
- Software versions
- Calibration files
- Application notes, etc.

Also, consider registering your purchase with Lindorm, Inc., so that you may be given notice when updates are available. Register by sending complete contact information and product model and number to:

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Environmental

Temperature range:	0ºC — 50ºC
Maximum depth:	40 m

Humidity: Only open the logger in non-condensing conditions. Always put a package of dry desiccant in the logger house before closing it.