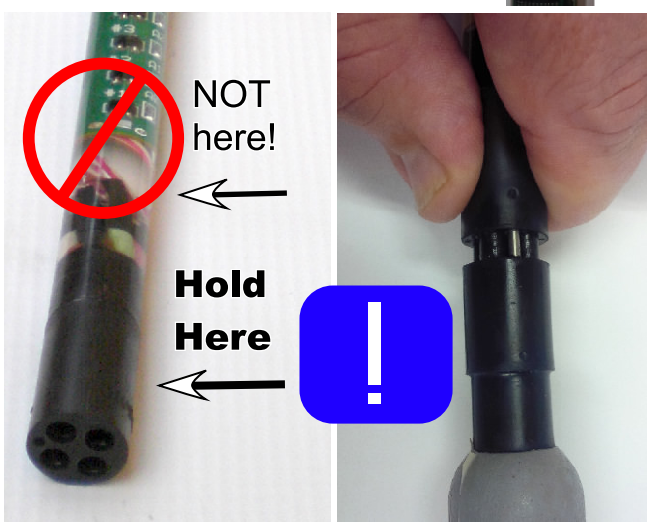
SediMeter™ SM3 manual

Unpack and identify parts. The cleaner shuttle is attached with a monofilament (fishing) line.

1. Apply insulating **grease** to the under-water connector or blind plug prior to plugging it in to the SediMeter. If plugging it in under water, connect the power last.

2. Install the **driver** for the USB to RS485 cable. See lindorm.com/downloads
3. Connect the cable to the computer. The SediMeter battery will start **charging**.
4. Install the SediMeter **software** from the CD or as downloaded from lindorm.com
5. Use the software to **set up** the SediMeter for deployment (other side).
6. When **disconnecting** the cable from the instrument, grab the black rubber **ONLY**. **DO NOT GRAB THE PLASTIC.**



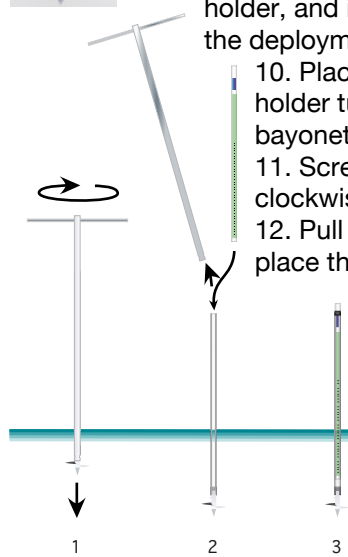
FIELD DEPLOYMENT

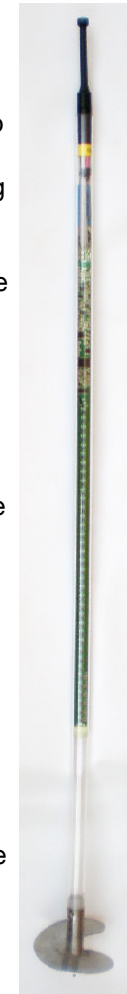
1. Assemble the handle (see photo)
2. Screw the holder tube onto the anchor
3. Plug the *greased* blind plug into the SediMeter
4. Insert the SediMeter into the holder tube for fit as in the photos below

SM3A only: Apply 5 turns of electric tape in a spiral on the instrument where you want the top of the holder tube to be when installed.

SM3B only: Shuttle should be just below the metal house; if not, run up or down with software

6. Decide desired insertion depth (less if expecting siltation, more if expecting scour)
7. Place handle next to the instrument so that the bayonet lines up
8. Place a turn of electric tape on the handle at the desired insertion depth
9. Remove instrument from holder and bring handle, holder, and instrument to the deployment site.
10. Place the handle over the holder tube and attach it to the bayonet of the anchor.
11. Screw it down counter-clockwise to the tape mark.
12. Pull the handle up and place the instrument in the holder tube.
13. To avoid vibration, orient the SediMeter so that the OBSes face either upstream or downstream, not sideways.

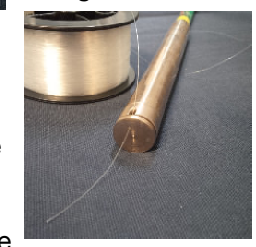




CLEANER PREPARATION

1. The cleaner has a wiper between a plastic screw and a lead nut. Its hanging in a braided fishing line from a reel on the top of SM3B.
2. Using the software, align the hole in the reel with the line guide. Then thread the line through the hole and tie a knot above the reel.

3. Cut the line about 90 cm long and thread the other end through the hole in the plastic shuttle part. Tie a knot to prevent it from sliding through the hole, which is 1 mm in diameter.



4. Use the software to drive the shuttle up so it is well above the #37 turbidity sensor.

5. When deploying, set a delay before the first cleaning so that the instrument can be installed before the cleaning occurs.

Specifications

Memory capacity	16,384 measurements
Burst samples / measurem.	20 samples, 1 to 16 seconds
Turbidity resolution	1 FBU
Level resolution	10 µm
Recommended depth	1 to 50 m
Temperature range	0°C … 50°C

May overheat if left in direct sunshine. Do not bend.

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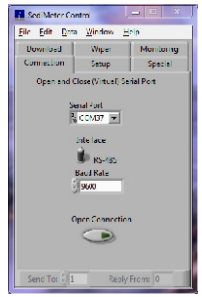
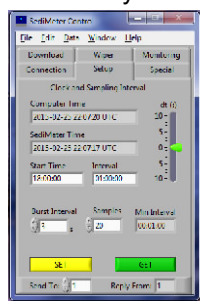
CONNECTING SEDIMETER TO SOFTWARE



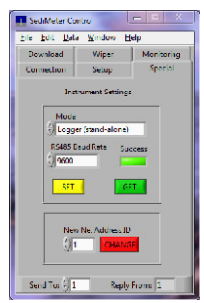
1. Connect the modem cable to the SediMeter and the computer.
2. Start SediMeter.exe ver 3.2.
3. Select the COM port of the modem cable in the Serial Port selector.
4. Set the Baud Rate (the default after SediMeter Reset is 9600).

5. Click Open Connection. If successful the other tabs will become unlocked.
6. As default the SediMeter has ID=1, but if you have it set to another ID, change the Send To setting to match.

PREPARING FOR DEPLOYMENT

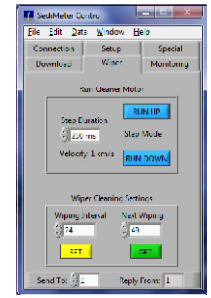


1. Open the **Setup** tab. The fields are automatically filled with values from the SediMeter. The dT (s) indicator shows how right or wrong the internal time is. The SediMeter clock is in UTC. Make sure that the computer time is correct!
2. Enter the desired Start Time (i.e., time of first measurement), and Interval in HH:MM:SS.
3. Set Burst Interval and number of burst Samples.
4. Click the **SET** button. To verify, click **GET** and check that the dT indicator is zeroed.
5. If you are using a cleaner, set it up now.
6. Open the **Special** tab.
7. Select Logger mode.
8. Click **SET**. When the battery is charged you can disconnect and deploy.



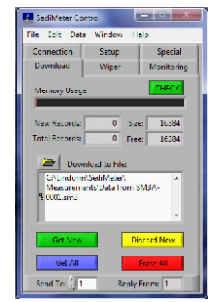
While in Logger mode, the Setup tab's SET button will not have any effect, but you can still use the GET button to check the status.
The Special tab is also the place for changing baud rate (*recommended before downloading data*) and if you need to assign different NetAddr IDs to different units in an interconnected network.

CLEANER IN SM3B



1. Open the **Wiper** tab.
2. Use the blue buttons to run the shuttle up or down and position it in its start position above OBS #37. The step duration sets how long it runs per button click.
3. Set the wiping interval as a multiple of the logging interval. For instance, with 1 hour logging interval, set it to 24 to clean the sensor once per day (every 24th measurement).
4. Set the next wiping in relation to the start of logging. A value of 1 means it will clean after the first measurement. In our example, to do the first cleaning 48 hours after the start, set it to 49.
5. Click **SET**. To turn off cleaning, use 0 as interval.

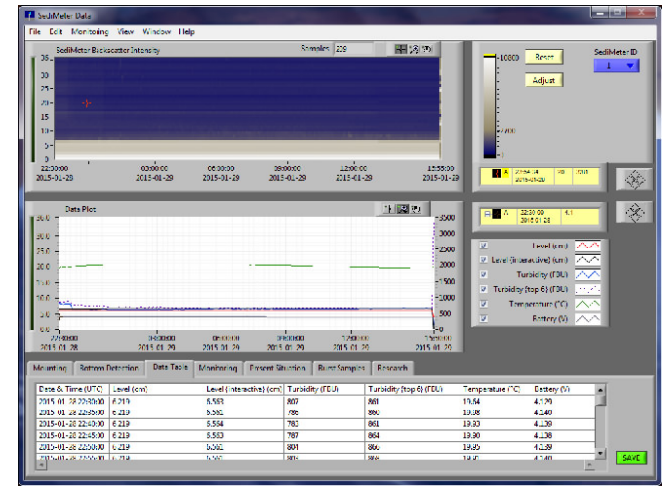
DOWNLOADING DATA



First set the unit to Sleep mode.
1. Open the **Download** tab.
2. Click the **CHECK** button. The number of measurements in memory is shown. "New Records" are those that have not yet been downloaded. They cease being new when they are downloaded, discarded (yellow button), or the SediMeter is Reset (with a magnet).
3. Click the folder button. In the dialog that opens, select a file name and location for the file you are about to create.
4. To download only the new records, click **Get New**. To download all records, click **Get All**. To discard the new records without downloading them, click **Discard**.
5. After all the requested data have been downloaded, a new window appears with the data. They are already saved to file. Close the window (you can re-open it from the Edit menu).
6. To clear the SediMeter's memory, click **Erase**. It will take about a minute. It is a good idea to start a new mission with an empty memory.
7. If you don't empty the memory you still have access to all the memory, but it will be recorded in a Round-Robin fashion. If the instrument is then Reset, it will not be downloaded in chronological order, and the file might be corrupted.

ANALYZING DATA

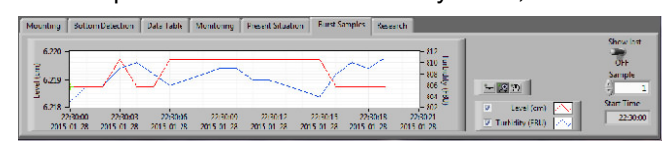
This assumes the downloaded data is still in memory. If not, open the desired file from the File menu.
1. Select menu **Data -> Analyze Logged…** to open the SediMeter Data window.



2. The top chart shows the turbidity in FBU (formazin backscatter units) from the 36 OBSes. There are two preset intensity scales, one is fixed 0 … 30,000 FBU (**Reset**), and one is relative; it does an automatic "contrast stretch" based on the data (**Adjust**). You can also manually set any value, color, and intermediate points by typing in values, clicking in the scale, and dragging the sliders.
3. The middle chart plots the values that appear in the Data Table (bottom). Explanation:

Level (cm)	calculated in the SediMeter
Level (interactive) (cm)	calculated in software
Turbidity (FBU)	from OBS sensor #37
Turbidity (top 6) (FBU)	mean of OBS #31…#36
Temperature (°C)	CPU temperature
Battery (V)	Battery voltage

4. Use the Help function and tip strip to find out what different tools do. You can zoom and use cursors to see details of the data.
5. To export the data of the intensity chart, use menu



File -> Export…. To export the data in the Data Plot, click **SAVE** in the **Data Table** tab.