PME MiniDO$_2$T loggers

Temperature, dissolved oxygen, long-term loggers
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Quick MiniDOT Logger Checklist:
Start DO/temp logging:
☐ **Switch power on, LED will flash 1x**
☐ **Watch until LED flashes 5x to indicate logging has started.**
☐ **Deploy- anchor with rebar**
Stop DO/temp logging:
☐ **Dry the unit completely. Remove housing.**
☐ **Press *CLOSE FILE BUTTON* first! LED will flash continuously.**
☐ **Switch power off.**
☐ **Download SD card on computer.**
☐ **Delete data from SD card. Return to unit.**

Installing software: MiniDot Software should be installed on the computer. Download from the enclosed program disc. Three files should be placed on your C:/ drive. (MiniDot Plot, MiniDot control, manual, libserial port). Make sure MiniDot is not running or data could be lost.

To Start Logging:

1) Open the miniDOT Logger by unscrewing the white housing from the black end cap. Remove the housing completely.
2) Slide the power switch to the ON position. The LED will flash once. The miniDOT will now delay to the start of the next minute. Observe the LED for up to 90 seconds. Sometime during this period it will flash 5 times indicating that logging has begun. If it flashes continuously, see below table.
3) Inspect the o-ring seal for debris.
4) Close the miniDOT Logger by screwing the white housing back onto the black end cap.
5) Deploy the miniDOT Logger.

To stop logging:

1) Recover the miniDOT Logger
2) Clean and dry all accessible surfaces except the 'foil'.
3) Open the miniDOT Logger by unscrewing the white housing from the black end cap. Remove the housing completely, taking care that water does not drip onto interior surfaces of circuits or other items inside the logger.
4) **Press the File Close button!** (or your last 4h of data will be lost). The LED should begin continuous flashing.
5) Slide the power switch to the OFF position.
6) Remove the SD card. Use a card reader and a host computer to copy the files located in the DATA directory onto the host computer. These text files (there will be many with your data spread throughout them) contain the measurements. You must plot the data to have the software consolidate the files into one file. See below.
7) Run PME's miniDOTPLOT.jar program to see a plot of dissolved oxygen, temperature and oxygen saturation, and to produce a concatenated file containing all measurements.

Programming logger: (time and sample interval)

Take white cover off of the MiniDOT
Attach MiniDOT to computer using connection cord + USB/serial cord (must install USB driver for this cord-unless you have a serial port on your laptop).
Open MiniDot "Control" file
Turn minidot power on (the only switch inside the unit, not the button).
Wait until LED light is constantly on, press OK.
Select the correct COM port (program software should recognize the port in use).
Set time difference from GMT (-4 for NY)
Set desired sample interval in minutes (range 1m - 60m). We use 5 m intervals.

Calculating DO (mg/L) from % DO:

Be sure to stop logging before removing SD card or the last 4 hours of data will be deleted (see above).
Remove SD card from MiniDOT logger by taking the white cover off the unit and untape the SD card near the top of the unit.
Insert SD card into laptop or computer.

Open MiniDot "Plot" Software (located in program files under MiniDot or on disc)
A box will appear with places to insert time correction, elevation, salinity
Time Zone offset (difference from GMT time) = -4 for NY
Elevation (m) = 276 (Millbrook, EB Wappingers)
Salinity (ppt) = see sonde data

Open data folder in the software by browsing for the SD card. Select the entire "Data" file on SD card
Press "Process" and a graph will appear having 3 lines, temp., DO%, DOmg/L
A new data file will be created on the SD card with processed data with % saturation, new adjusted time (for NY), old time (GMT), mg/L and temperature. This file is named "CAT" file and is located in the "Data" folder.
Open this file using "notepad" or similar program and import into Excel. Save data on your computer, not on the SD card.
Erase data from the SD card and return the card to the MiniDot unit. The logger needs to have an empty or fairly empty card to record data.

Calibration: MiniDOT logger will maintain its calibration for 1/2 million samples. Loggers should be returned to PME for recalibration.

Battery life: Coin cell battery is good for 2 years to operate clock when power is switched off. This can be manually replaced. The AA lithium battery will last 400 days at 5 min sample intervals. This is 115k of data. There will be no indication of battery failure, so keep track of sample number and days or change the battery once a month.

Translation of what the flashing LED light means:

LED Flash number	Reason	Corrective Action
1	Normal. Occurs when power is switched on. Indicateds the CPU has started its program.	None
2	Error. No SD Card or SD card not plugged in.	Plug SD card correctly. Install new SD card. Re-format SD card
3	Error. Requested sampling interval less than 1 minute or greater than 1hr.	Contact PME
4	Error. Clock not initialized.	Reset clock using miniDOTControl program
5	Normal, presented once after roughly one minute, indicating that the miniDOT Logger is starting logging operation.	none