

**This short manual is no replacement of the actual MINIFLASH manual!
Please, read the manual first to ensure complete functionality of the instrument.**

1. Make sure the line voltage corresponds to the voltage setting above the power inlet connector on the rear of the instrument.
2. Place MINIVIS II on a stable bench top and connect the power supply cable to the power inlet on the rear side of the instrument and the mains voltage.
3. Equilibrate the instrument by turning the knurled nuts of the front feet so that the air bubble in the level on the top cover is within the red circle. This is important to guarantee reproducible results.
4. Switch on the instrument with the power switch above the power connector.

The display of the instrument is now illuminated and shows the main menu:



TASK SHIFT < > ▾ ▲

TASK	...	Execute a selected operation, indicated by*
SHIFT	...	Access to special functions (in combination with other keys)
▾ and ▲	...	Modify numbers, letters and select options, marked with †
▲ ▾ and <>	...	Change cursor position

SETUP OF YOUR MINIVIS II

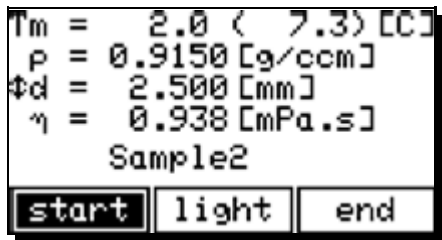
1. In the main menu: shift the cursor to SET and press TASK, then move the cursor to PARAM. + TASK:
 2. Move the cursor to †[C] and select the desired unit for the temperature with the ▲ and ▾ keys: [F] (°Fahrenheit) or [C] (°Celsius).
 3. Shift the cursor to †[mPa.s] to set the unit for the viscosity.
You can select [mPa.s], [cP], [cSt], or [ms].
mPa.s is the commonly used SI unit and cP is the cgs-unit for dynamic viscosity, cSt is the cgs unit for kinematic viscosity.
If you select ms, then only the time of descent in ms will be displayed at the end of a measurement.
- The density of the ball **p-ball** doesn't have to be changed for steel balls (gold coated or not): default value is 7.8800 g/cm³.
4. Set the equilibrium time t-equ to 120s; this can be changed depending on the thermal heat capacity of the sample.
 5. Enter the number of individual measurements (N meas.).
The result is calculated from the average of the N measured times of descent. **N can be set to values between 1 and 9.**
 6. In the Set-menu shift the cursor to MODE and press TASK: 3 different measuring options can be selected: **normal, repetitive and triggered.**
For lab purposes the **normal**-mode is mostly used: the instrument will lift and drop the ball N times and calculate the result from the average of N measured times of descent.

- Set the calibration constants and acceptance limits: cal:** It is possible in **MINIVIS II** to set limits on the repeatability. If, after N individual measurements, the calculated standard deviation σ of the N times of descent is smaller than this limit, then the result is displayed, together with the standard deviation σ .

Calibration of MINIVIS II

Select the proper ball size from the table in Sec. 4.1 of the Operation Manual.

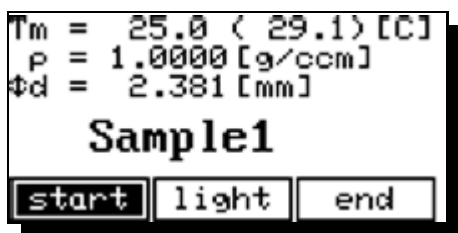
- Fill the syringe and insert the syringe in the measuring chamber**
- In the main menu: shift the cursor to Cal and press TASK,** the LCD shows:



- Enter the test temperature, the density ρ and the viscosity η of the calibration liquid and select the diameter of the used ball, by using the ∇ and \triangle keys.**
- Check for possible presence of air bubbles by selecting LIGHT +TASK.**
- Shift the cursor to START and press TASK to start the calibration measurement.**
When the calibration measurement is finished, the LCD shows **C = x.xxxxx**, the calibration constant for the selected ball diameter that was determined with this measurement. The number in brackets is the previous value of this constant that was used up to now.
- The new value can be stored by moving the cursor to ok and pressing TASK.**

Measuring routine procedures: Normal mode

- In the main menu, move the cursor to MEAS. and press TASK.** The display will change to:



- Enter the test temperature, the density ρ , select the diameter of the used ball, by using the ∇ and \triangle keys.**
- Check for possible presence of air bubbles by selecting LIGHT +TASK.**
- Shift the cursor to start and press TASK to start the measurement.**

When the measurement is finished the **dynamic viscosity (η)** and the **standard deviation σ** (% between brackets) of the N measurements are displayed. If N=1, no standard deviation can be displayed.

(e.g.) $\eta = 3.744$ [mPa.s]
(0.3%)