Dataplate User Manual

Version of 2020-08-04.

1. Introduction

This user manual explains how to operate the Dataplate hotplate for baking steps of SU-8 films.

2. Login

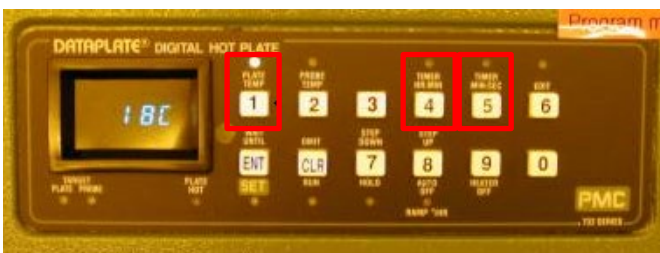- Login on "Z01 DataPlate" with CAE on zone 01 accounting computer.

> Z01 DataPlate - Programable Hotplate

3. Operation

- The hotplate uses its own controller with an extremely unintuitive ☺ language.

- Make sure the controller is turned on. If not, turn it on.

- The Dataplate can operate in two modes:

  - Fixed temperature mode
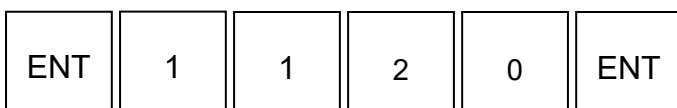 - Programmed temperature mode, preferred for SU-8 bake steps.

  WARNING: Maximum hotplate temperature is 220°C.
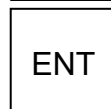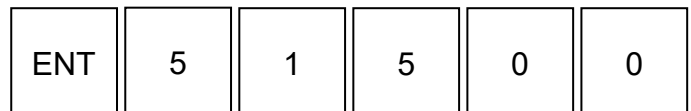
1) "Fixed temperature" mode:

- The display shows the actual temperature.
- Users can change the temperature (button 1) and timers (buttons 4 or 5) settings by using the right combination of key presses.
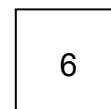 - Temperature: For 120°C setpoint, press:

ENT	1	1	2	0	ENT

  - Timer: For 15 minutes, press:

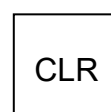| ENT	5	1	5	0	0

ENT

- Pressing **button "1"** will start the **heating**. The status LED will turn ON.
- Make sure to wait at least 5 minutes for temperature stabilization.
- Open the cover.

- Place your wafers on the aluminium foil of the hotplate (maximum 5 wafers in a batch).

- Close the cover.

- Pressing **buttons "4" or "5"** will start the **timers**. The status LED will turn ON.
- When the timer is finished, turn off the hotplate.

2) "Programmed temperature" mode:

- The "Programmed temperature" mode uses the same concept of key presses to edit the temperature profile program, but with much more complexity.
- Turn on the hotplate.
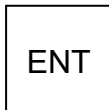- Enter the program edition by pressing:

6

- The "edit" status LED will turn ON. Step " 00. " appears. **At this step, pressing "CLR" will erase the complete program.**
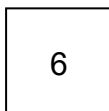
CLR

- Buttons "7" and "8" will cycle through the steps of the program.
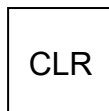
7	8

- **At any steps other than " 00.", pressing "CLR" will erase the actual step.**

- Each step of the program can set one of the four following parameters:
    - button "1" = temperature [°C]
    - button "4" = timer [hh:mm]
    - button "5" = timer [mm:ss]
    - button "8" = ramp speed [°/hour]

- Each step will have one of two different "functions" which will be toggled by pressing several times (before the parameter keys) on:

ENT

- The function N° 1 is "SET", the display symbol is " |_ ": **Immediately set target value and continue to the next step.**
- The function N° 2 = "WAIT UNTIL", the display symbol is " |_| ": **Continue to the next step when the target is reached.**
- Button "9" = HEATER OFF function
- When all program steps are entered correctly, users can go out of the edition mode with button "6". The status LED will turn OFF.

6

- The program is started by pressing "CLR" (outside of edition mode)
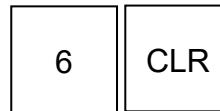
CLR

4. Program example: SU-8 GM1075 PEB

- Please find in the table below the recommended parameters from the SU-8 runcard for the GM1075 PEB step.

Z1 / Acculplate Z1 / Dataplate	Segment 1: Ramp time: X min Temp.: Z °C; Step time: Y min Segment 2: Ramp time: 90 min Temp.: 30°C; Step time: 0 min Segment 3 -> 5: NO INFLUENCE	X is the time for the ramp up, Y is the bake time. [Type: X, Y] 1040: 20 min, 15 min 1050: 20 min, 20 min 1060: 30 min, 30 min 1070: 40 min, 40 min 1075: 50 min, 60 min Z is the bake temperature: 90C for Si 85C for float glass

1. Enter edition mode and erase the program:
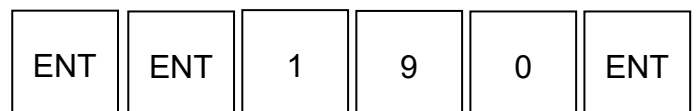
6	CLR

2. <u>STEP " 01. "</u> The starting temperature is 20°C and the first ramp is 50 minutes to go to 90°C (Si wafer) → ramp speed 84°/hour. The following buttons sets the ramp speed.

ENT	8	8	4	ENT

   Make sure the function is " |_ ".

3. <u>STEP " 02. "</u> The ramp speed is fixed, we can start heating until we reach 90°C. The following buttons sets the heating ramp until 90°C.

ENT	ENT	1	9	0	ENT

   Make sure the function is " |_| ".

4. <u>STEP " 03. "</u> We reached 90°C and we want to wait 60 minutes at this temperature. The following sequence will do it.

ENT	ENT	5	6	0	ENT

5. STEP " 04. " We want to ramp the temperature down from 90°C to 30°C in 90 minutes → ramp speed 45°/hour. The following buttons change the ramp speed to the new value.

ENT	8	4	5	ENT

6. STEP " 05. " We ramp down until 30°C with the following buttons.

ENT	ENT	1	3	0	ENT

7. STEP " 06. " The bake profile is done, we stop the process with the special function HEATER OFF.

ENT	9	ENT

8. Buttons "7" and "8" can be used to check all the steps.

9. Exit the edition mode with button "6".