

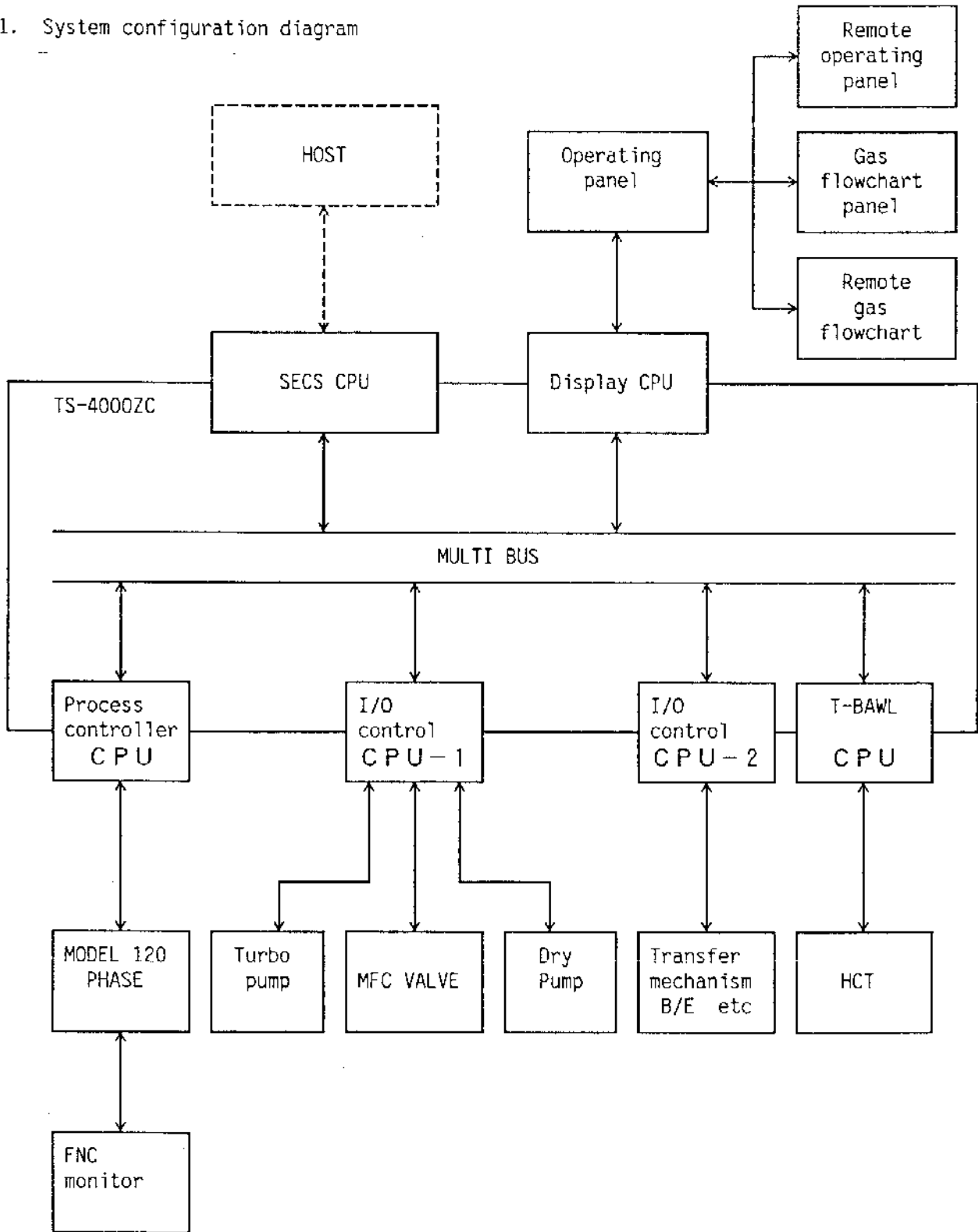
# CONTROL SYSTEM

# SPECIFICATION

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3-4 Control System Specifications

1. System configuration diagram



(1) This system is optionally communicable with your host controller.

(2) The TS-4000Z's standard specifications are listed in the following page.

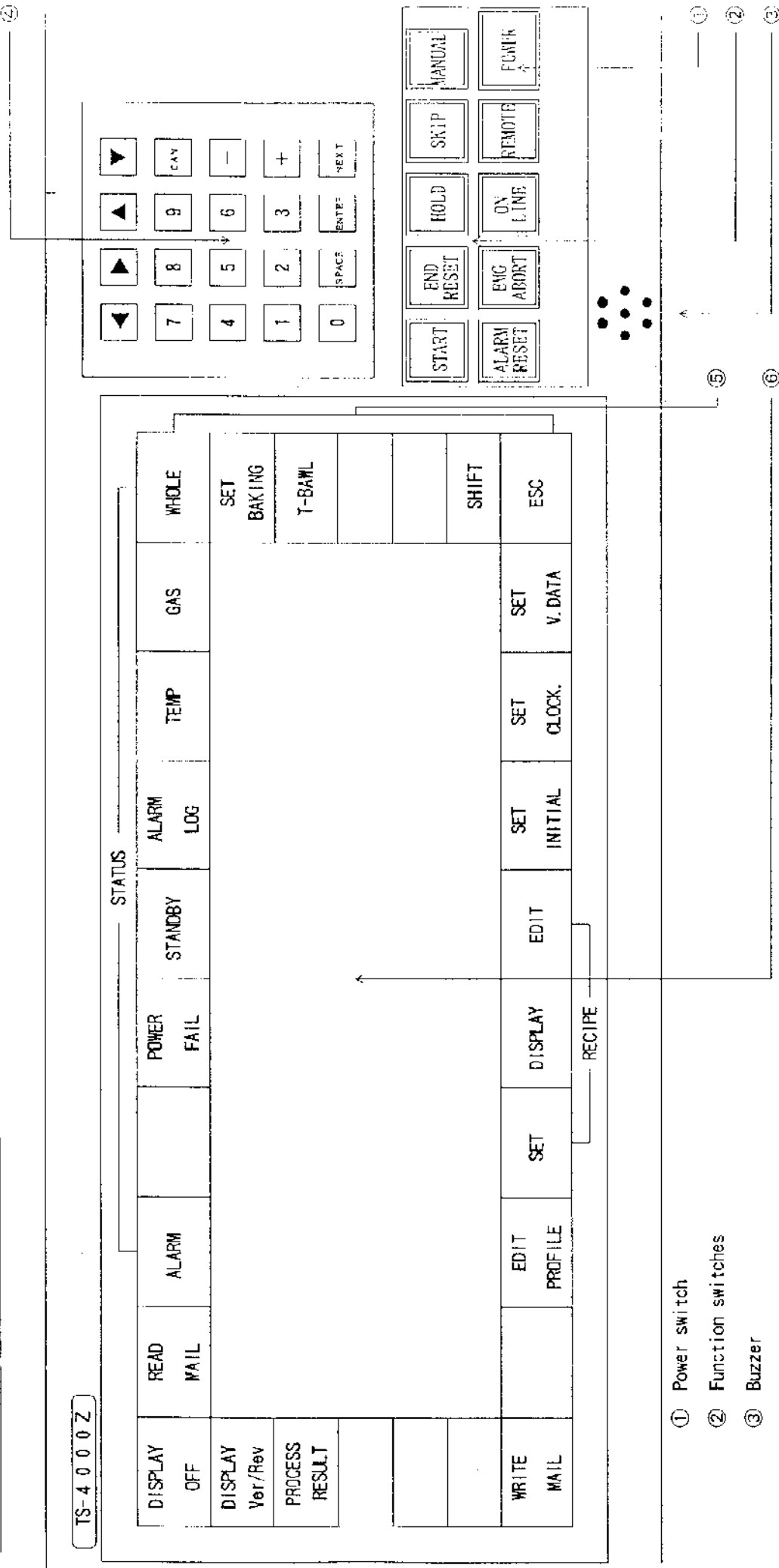
## 2. TS 4000Z Standard Specifications

- (1) Temperature setting range: 0°C ~ 1399.9°C
- (2) Temperature control
  - accuracy : 0.1°C
- (3) Temp. rise/fall rate : 0.0~255°C/min.
- (4) Number of profiles : 25 (5 tables each comprising 5 temperature profiles.)
- (5) Number of MFC points controllable : 8 (More points may be added depending on the system specifications.)
- (6) Number of valve control points : 16 ( " )
- (7) Flow rate setting : 0 ~ 50000SCCM or 0 ~ 99.9% /100 sec.
- (8) Number of pressure sensor: Max 4 point
- (9) Pressure setting range : 0 ~ 999 TORR
- (10) Plasma Display screen : A plasma display of either 10 lines by 40 characters, or 20 lines by 53 characters
- (11) Method of input entry : Touch sensor panel  
Numerical key pad  
Valve switches (on the gas flow chart)
- (12) Recipes : Main recipes } Max.60 recipes  
Sub-recipes } The total number of  
Abort recipes } programmable steps of all  
the recipes has been  
increased to 800.
- (13) Number of storable recipe: 60 at the maximum (total sum of main, sub-, and abort recipes)
- (14) Number of steps : 100 at the maximum  
(The total number of 800 steps)  
(This does not imply that all the 60 storable recipes can have 100 steps. The total number of steps in the recipes vary depending on the way recipes are prepared.)
- (15) Communication with the host controller : RS232C, SECS conformed (optional)

※ The above value shows the possible setting range on the controller. Please acknowledge it shall be difference of actually processing.

- (16) Special notes
  - ① An external memory connector port provided on the furnace unit operation panel.
  - ② The connector(D-sub) for communicating with the host computer will be provided on the top of U/Box.
  - ③ The hard interlock should be able to cancel by "LATCH SW".
  - ④ It should be put a cover made of acrylic resin on the PDU changer switch.
  - ⑤ SECS Interface board shall be installed.

Front View of TS-4000Z Main Panel



- ① Power switch
- ② Function switches
- ③ Buzzer
- ④ Numerical key pad
- ⑤ Touch panel stationary keys
- ⑥ Display screen and touch panel keys

### 3. Temperature control specifications

- (1) Temp. controller : Model 120 Phase
- (2) Zone control : 4 zones independently controlled
- (3) Control method : Outer thermocouples  
Ratio-mixing
- (4) Auto-profiling : For each zone, 5 profile tables  
each having 5 ramping temperature  
points are provided.
- (5) Thermocouple : Type-R-Japanese Industrial Standards 1981
- (6) Temp. control range : Room temperature~1399.9°C
- (7) Temp. setting range : 0°C~1399.9°C
- (8) Temp. control : 0.1°C  
accuracy
- (9) Ramping rate  
setting range : 0.1~255°C/min
- (10) Long-term stability : Within 0.25°C against the sum of the power  
supply variance±15%
- (11) Control parameter : Programmable P.I.D.  
(semi-fixed)
- (12) Control output : Phase control of 4~20mA  
within the range of 0~100%
- (13) Alarm input : 8 dry contact points

### 4. Power box

- (1) External dimensions : 900mmW × 1050mmD × ~~3150mmH~~ △  
2200
- (2) Items housed in the box
  - ① Heater transformer
  - ② MC
  - ③ Step down transformer
  - ④ EMO SW
  - ⑤ FNC alarm unit
- (3) Special notes
  - ① The lever of the main breaker would be exposure the out of box  
lock type : Pad lock Tagout
  - ② The door of the breaker box could be locked.
- (4) Special notes  
~~Gas BOX(Ar, H<sub>2</sub>, H<sub>2</sub> line) is installed in top of the power box~~ △

### 5. Console box (A)

- (1) External dimensions : 600mmW × 600mmD × 2400mmH
- (2) Front panel contents
  - ① Turbo pump controller
  - ② Pirani gage
  - ③ Ion gage
  - ④ TS-4000ZC Operation panel
  - ⑤ Gas Flow Chart Panel
  - ⑥ PDU Change switch
- (3) Items housed in the box
  - ① Battery for turbo pump

6. Gas box

~~Console-Box-(B)~~

(1) External dimensions : 600mmW × 400mmD × 150mmH (Include Gas Box)  $\triangle$   
900                    600                    2800

(2) Front panel contents

① TS-4000ZC Operation panel      ③ PDU Change switch

② Gas Flow chart panel

(3) Special notes

~~Gas-Box~~(Ar, H<sub>2</sub>, N<sub>2</sub> line) is installed in top of the ~~-C/BOX-(B)~~ BOX.  $\triangle\triangle$