TECH2 Series Installation Manual

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1. TECH2 STANDARD USAGE

The installation for TECH2 electricity control system is very simple, and the function of the control system is complete. Nevertheless, to prevent the life of the system end fast, the customer must follow the standard usage that is set by the company. Please refer statements below:

1. The temperature for rack must be in the range of 0℃ ~ 40℃. The higher the temperature, the shorter the systems life; and the differences of the potentiometer position can reach up to 0.8mm. It is recommended to fix a fan near the main controller switching power supply, and another one near the SSR.

2. For temperature control, can use electromagnetic contactor or SSR (refer to the customers outfit). SSR heater sink should be not more than 65℃ or 75℃, and can't use more than 5 minutes.

3. Is required to use thermocouple type K. When installation, try not to tie together with strong electric parts. (This is regarding the accuracy and temperature stability)

4. The fuse for SSR protection must be used according to the specification:
a). power below 10A (consist of 10A) : use 10A fuse.
b). power above 10A and below 20A (consist of 20A) : use 20A fuse.
c). power above 20A : purchase according to the size of the fuse.

5. Input voltage for switching power supply is 230V or 115V (there is a switch at the side of power supply for selecting). Please note that, if using voltage 115V/60HZ, should convert it from 220V to 110V with DC/DC converter.

6. Our company is using a standard the fuse depends on the usage.

7. Must strictly avoid the main CPU board from being damaged by water or oil.

8. Transistor output board strictly prohibited 1 output point for 2 valves, but is allowed to connect a SSR.

9. Our company is using a thin and clear panel screen. Therefore, it's strictly prohibited to use high evaporate cleaner (etc. petrol, alcohol) to clean the screen. It is recommended to use kerosene and wax (the best suggestion) as cleanser.

10. After the installation, must avoid any wire related to computer system broken (except thermocouple), and short circuit with machine outer case. Switching power case will have slightly electric leakage. Therefore, we insist to do ground connection.

11. Proportion system normally can control the output of voltage or power (a standard tools for power controller). Power is set as 0.8A pressure and 0.7A flow.

12. A standard SSR should be type NPN, using H24V and HCOM power supply system.

13. The installation of potentiometer should avoid oil sludge pollution. If not, it will course the inner connection of the potentiometer not sensitive or wire harden and broken.

14. The location of the siren must be 20cm from the panel, 40cm from main controller.

15. For the electromagnetic contactor that is used by the machine, must fix a spark quencher parallel to the coil.

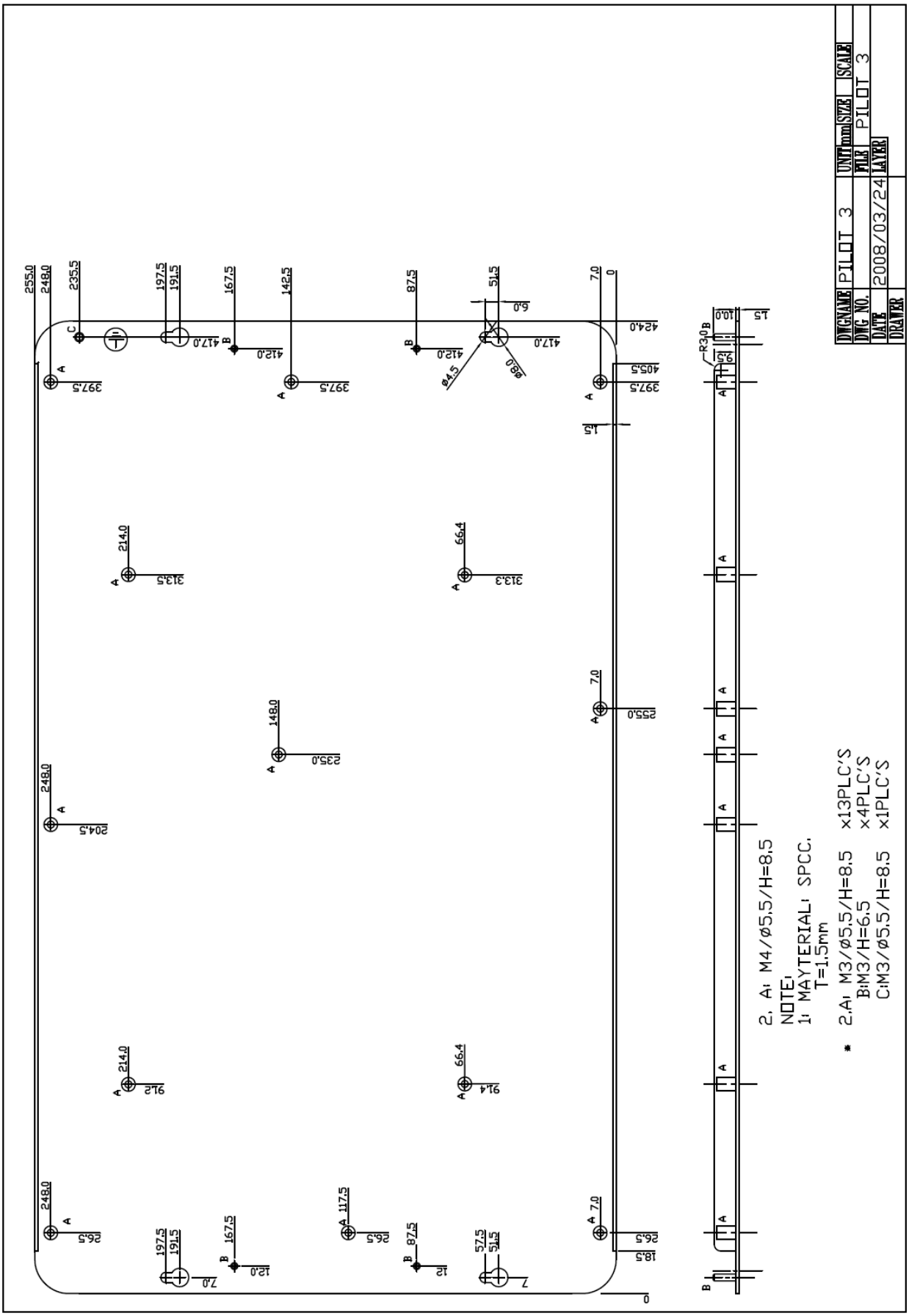
16. Use SSR if is not using transistor output as controller, should fix a reverse diode parallel to the coil.

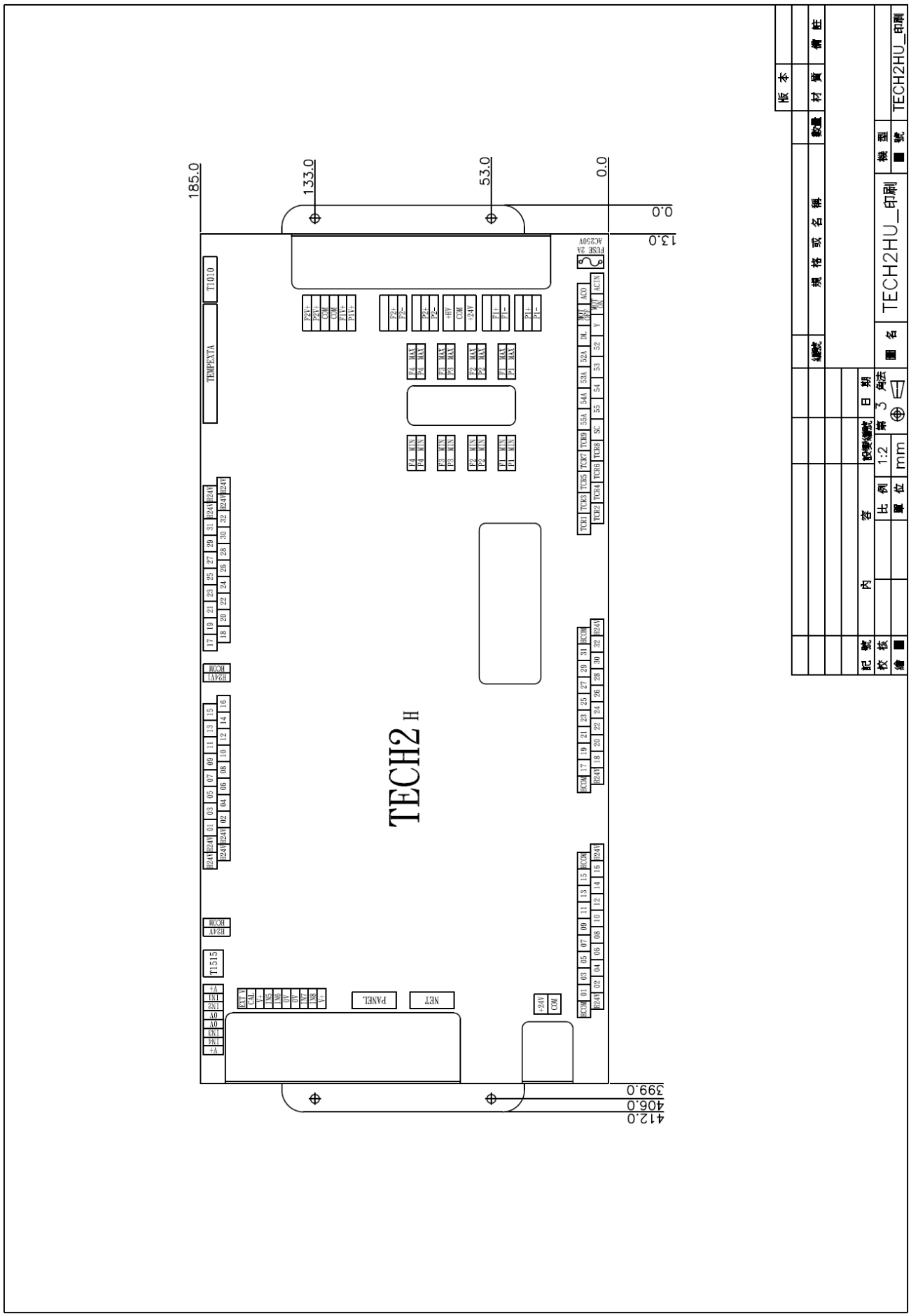
17. There is a LCD on the operation panel. When installing, must be careful to avoid collide. If need to install or change the program (MMI display operation program), be careful of the high voltage at the back of panel when you open the cover.

18. When fixing the power, please use iron board. If need to use bakelite plate, must make sure the ground connection is done properly. This is to prevent electric leakage and electric static interference from damaging the PCB.

This standard usage has to coordinate with the following installation manual. When the standard regulation is followed, this will guarantee the quality of the computer.

MAIN CONTROLLER MEASUREMENT DRAW




TECH2 H
TECH2HU_印刷
TECH2HU_印刷
185.0
133.0
53.0
0.0
399.0
406.0
412.0

2. Temperature Controller Installation

It consists of A. Thermowire and B. Temperature Increase Controller

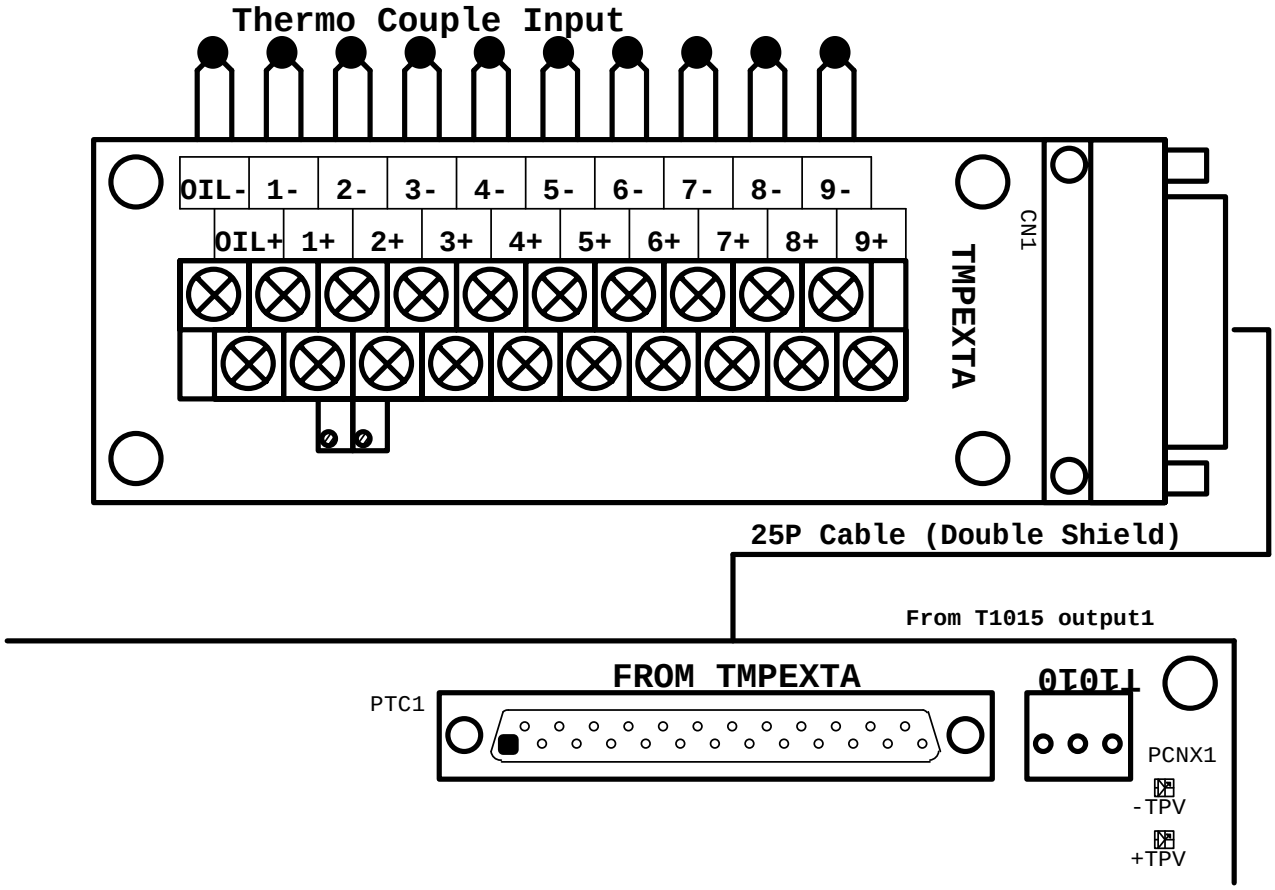
2.1 Thermocouple

1. Thermocouple must be fixed on the Thermo Couple Input block, OIL as oil temperature. Follow the +ve and –ve pole of 1-6 parts in thermocouple to fix the TC1-TC6. Don't connect the thermocouple through many connectors. This will prevent from bad connection and affect the accuracy of the temperature.

2. When the remaining thermocouples are not used, please set the temperature parameter on the HMI to the not use selection (Refer to the HMI Operation Manual).

3. Please connect the thermocouple wire to the +ve and –ve pole to avoid the incorrect value on the controller that might lead the incorrect movement.

(The draft below is one of the parts in the main controller)

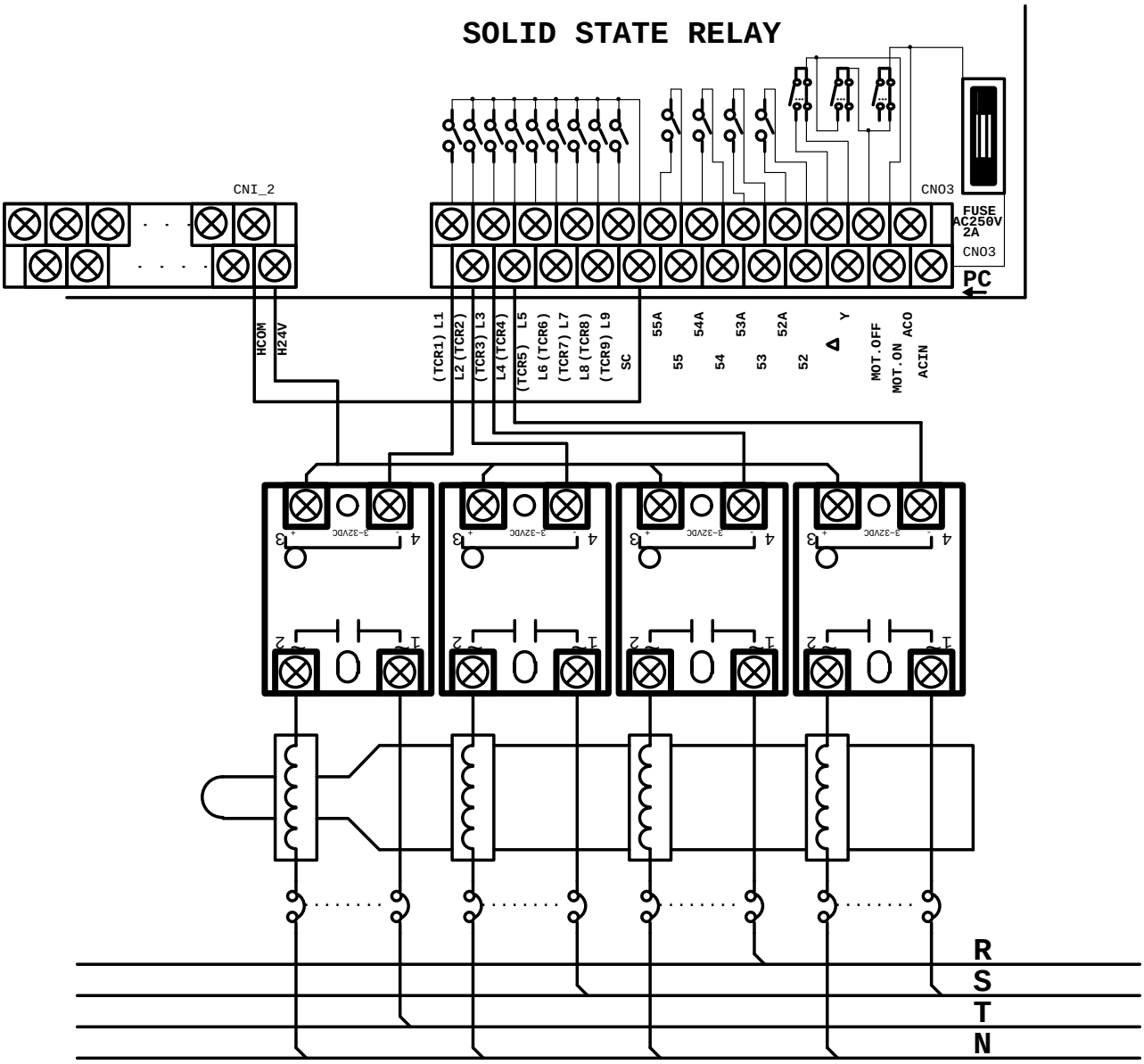


2.2 Temperature increase controller

Temperature increase controller uses A. SSR (Solid State Relay) or B. Magnetic Contactor

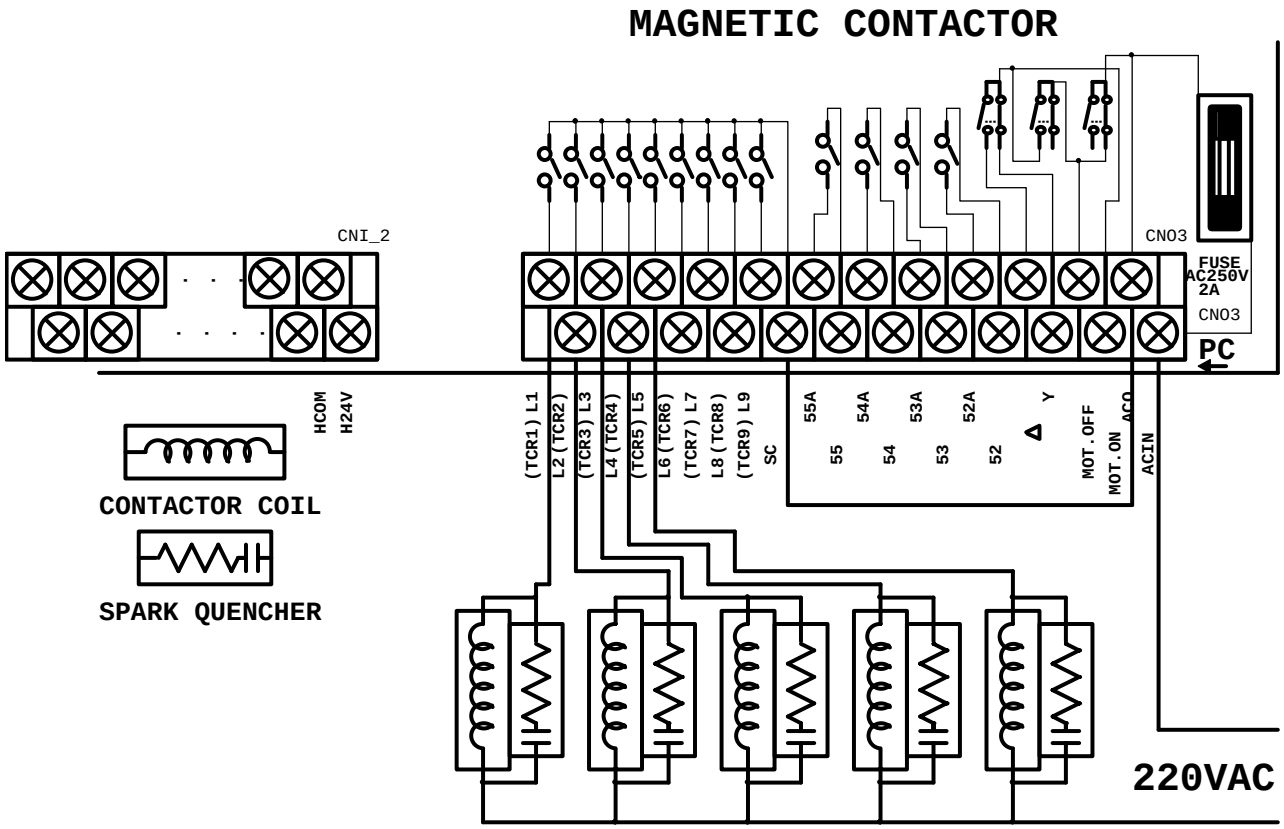
2.2.1 SSR

From the main controller RELAY OUTPUT connect straight to controller. Please be careful of the AC terminal and DC terminal. (DC terminal is the +ve and –ve pole, see below),



2.2.2 Electromagnetic contactor

If you are using electromagnetic contactor as the temperature controller, please use RELAY to control the contactor. And fix a spark quencher parallel to the contactor coil. (Refer below)

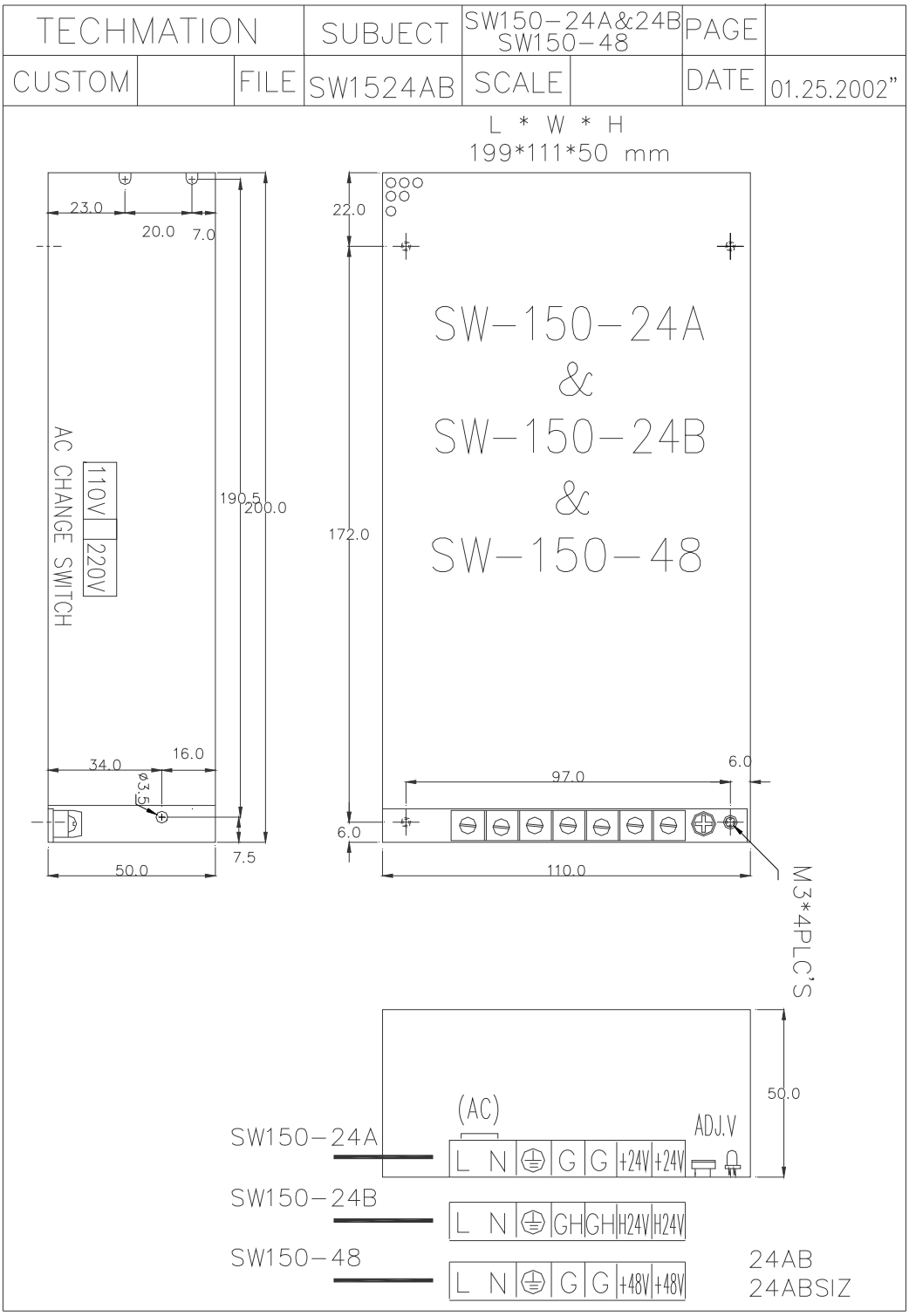


3. Switching Power Supply Installation

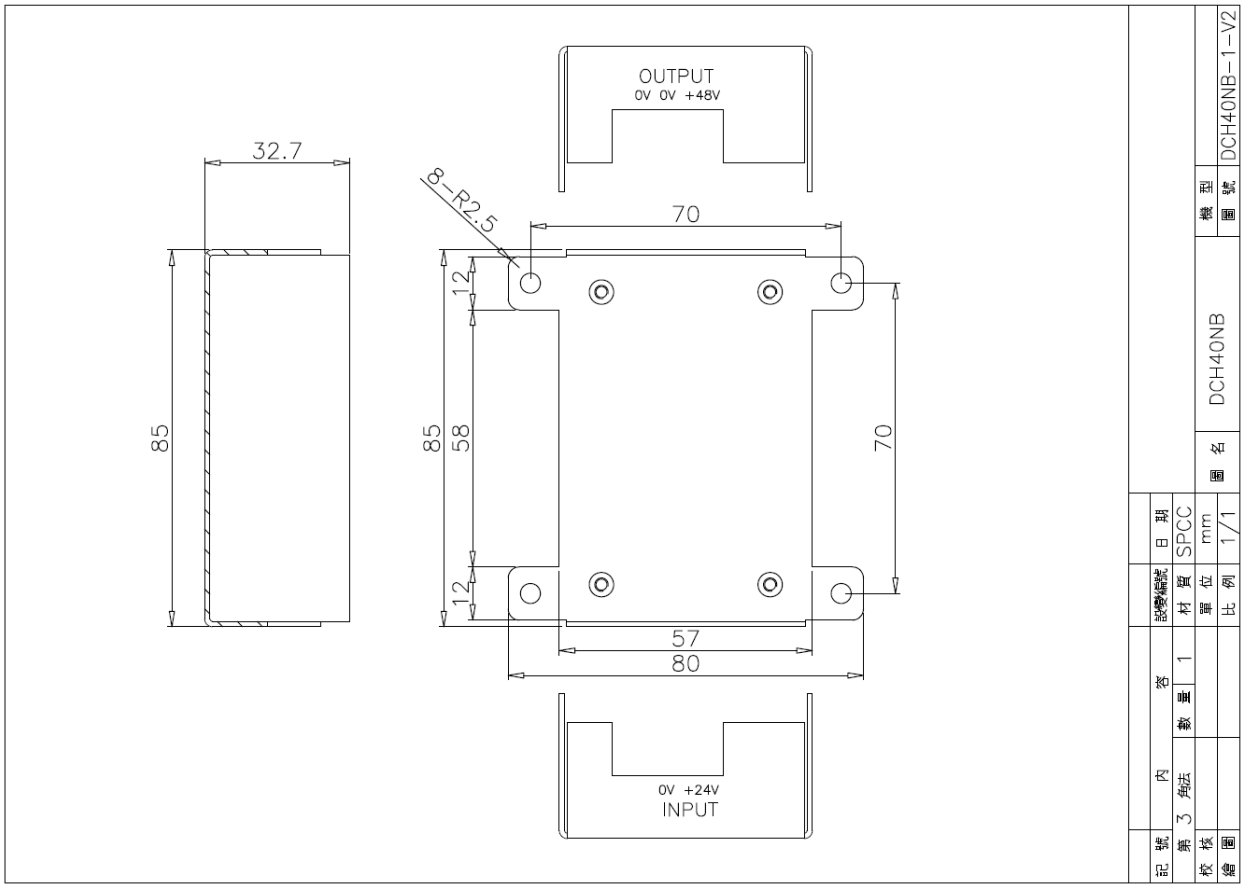
The power supply for this system uses 3 groups of switch power supplies with 110VAC/220VAC options.

A. For TECH2 main controllers, **+5V, +12V, -12V** DC/DC converter.
   For operation panel **+5V, +12V** DC/DC converter. Pressure proportional valve input voltage.

B. For TECH2 controller VALVE output and LIMIT(SW-150-48), as picture below:



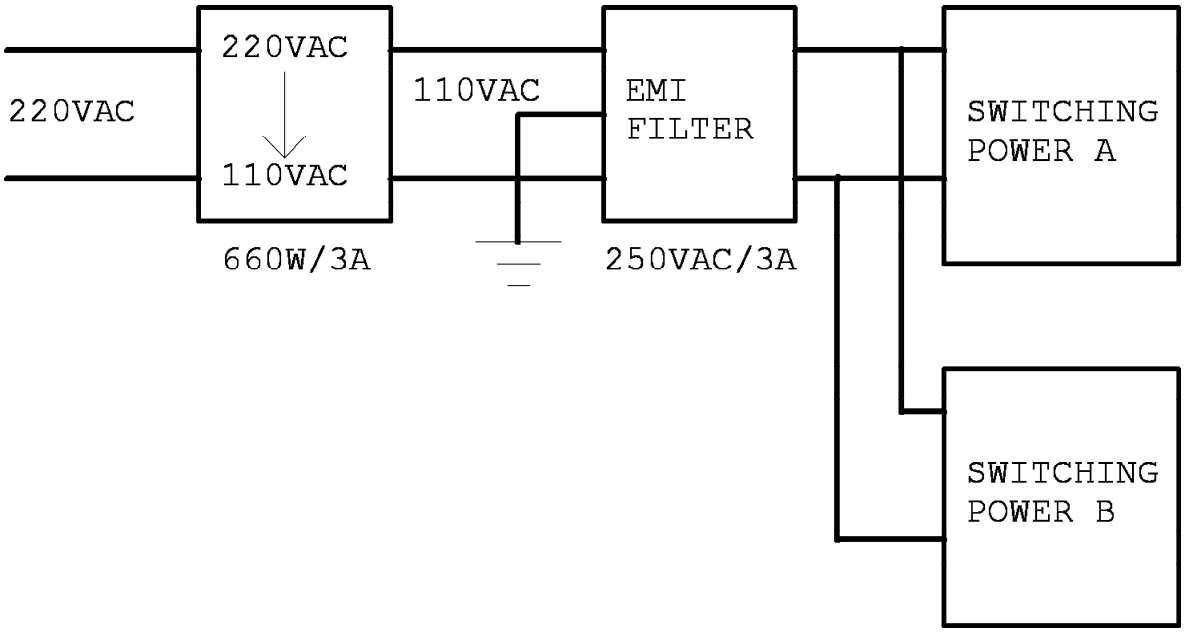
C. For TECH2 controller flow proportional valve input voltage, （DCH40NB）as picture below:



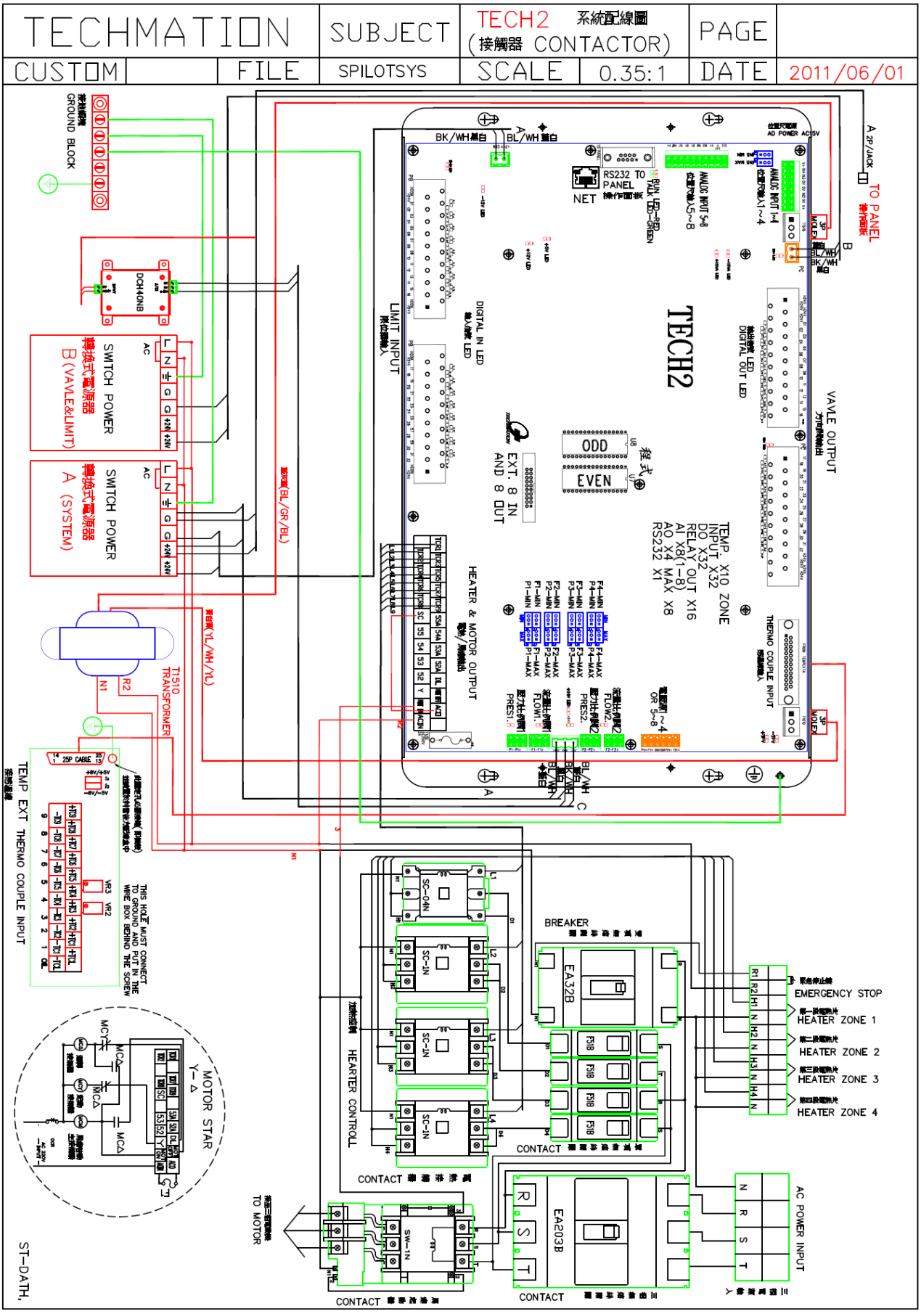
3.1 Reminder when using switching power

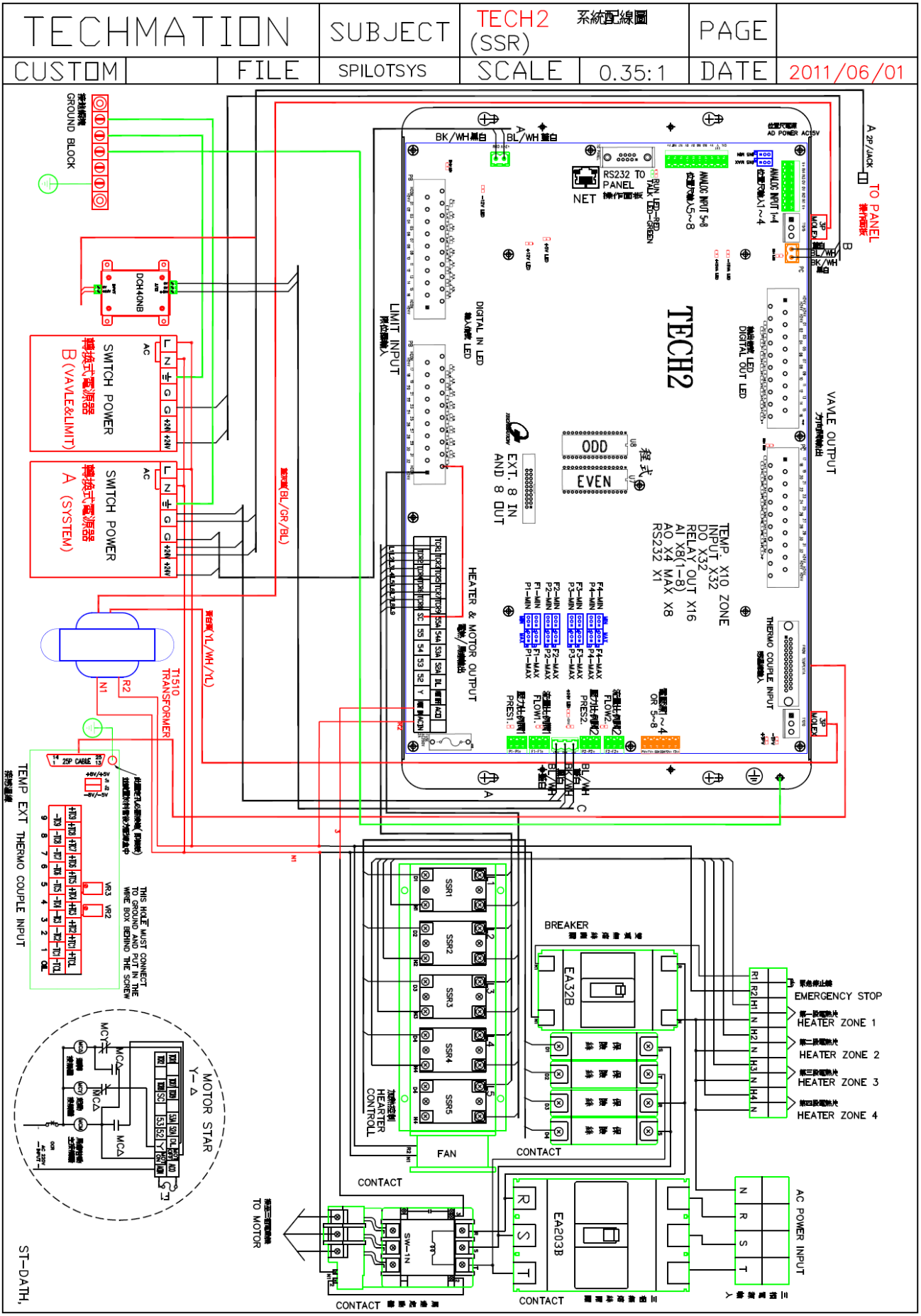
1. If the switch power input is short; you must amend the switch power with:
   a. Varistor (20N 471K)
   b. Separate transformer: transformer voltage input could use many kind potential inputs and two potential outputs (AC115V, AC230V,or AC115V/230V).
   c. EMI Filter (250VAC, 50/60Hz, 3A)

Please refer to the suggestion below to prevent the power supply break down.



2. FG for switching power supply must be ground connected. This is because, switching power supply might have slightly electric leakage, and this will disturb the system. Therefore, must prepare for ground connection no matter during fixing or using.(please refer chart below)




TECHMATION
SUBJECT
TECH2 (SSR) 系統配線圖
PAGE
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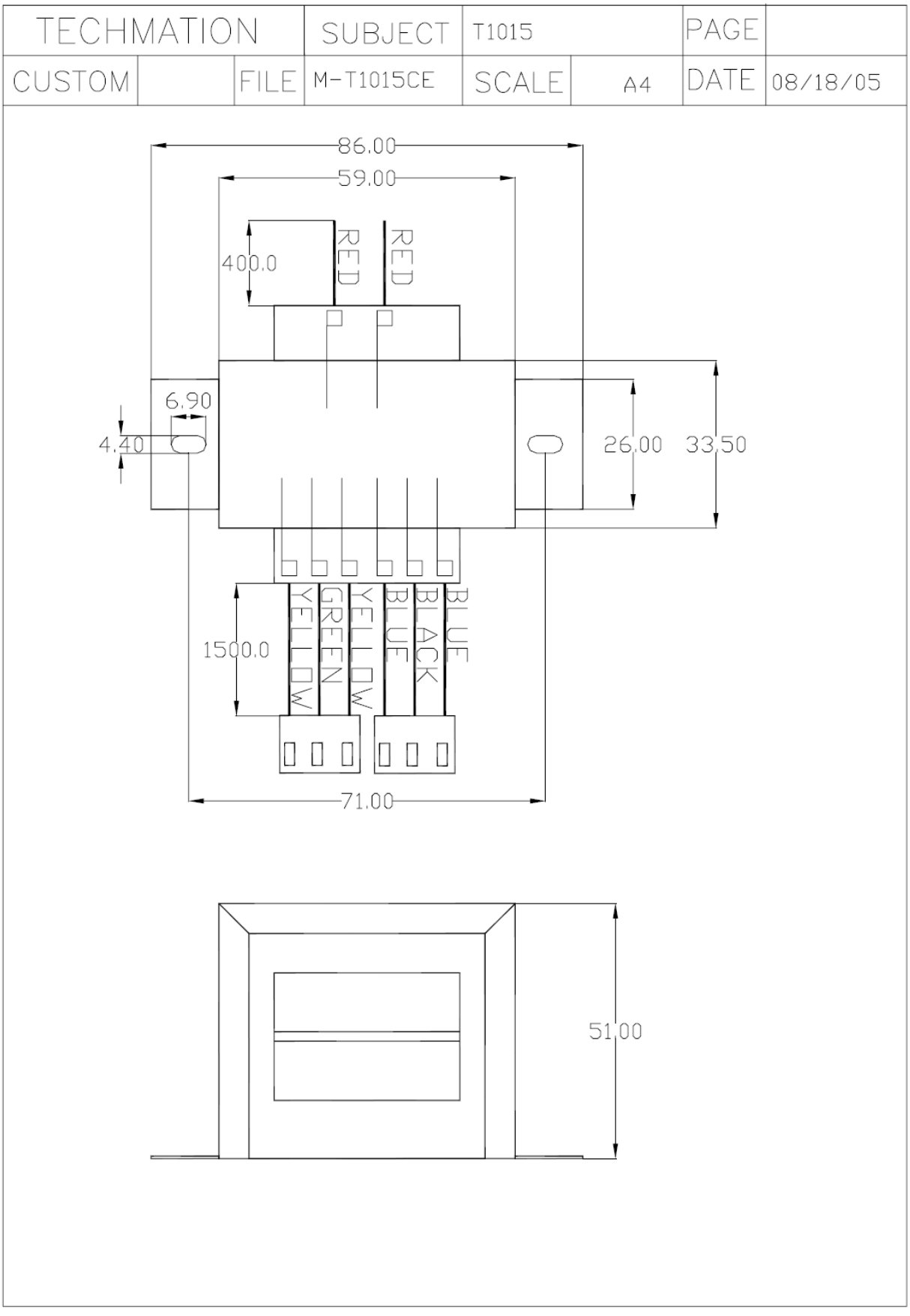
FILE
SPILOTSYS
SCALE
0.35:1
DATE
2011/06/01
TECH2
SWITCH POWER
B (VAVLE&LIMIT)
SWITCH POWER
A (SYSTEM)
TI510 TRANSFORMER
TEMP EXT THERMO COUPLE INPUT
MOTOR STAR Y-Δ
SSR1
SSR2
SSR3
SSR4
SSR5
FAN
CONTACT
BREAKER
EA32B
EA203B
EMERGENCY STOP
HEATER ZONE 1
HEATER ZONE 2
HEATER ZONE 3
HEATER ZONE 4
AC POWER INPUT
TO MOTOR
ST-DATH.

4. The T1015AS transformer (for temperature controller) and the potentiometer are used together;

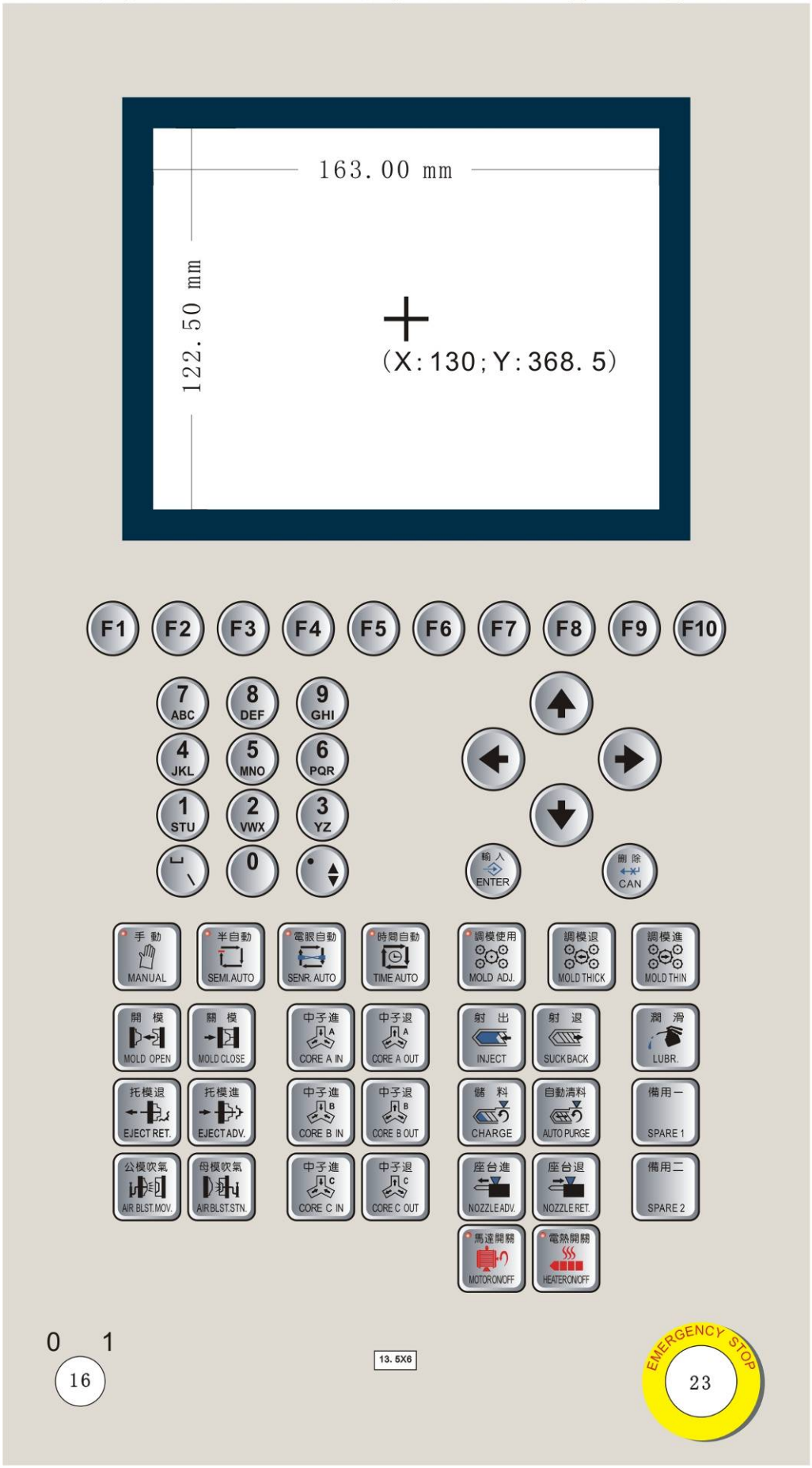
Temperature controller uses yellow-green-yellow 3P wire, straight intoPCNXI (Beside thermocouple input terminal) at the main controller CPU board;

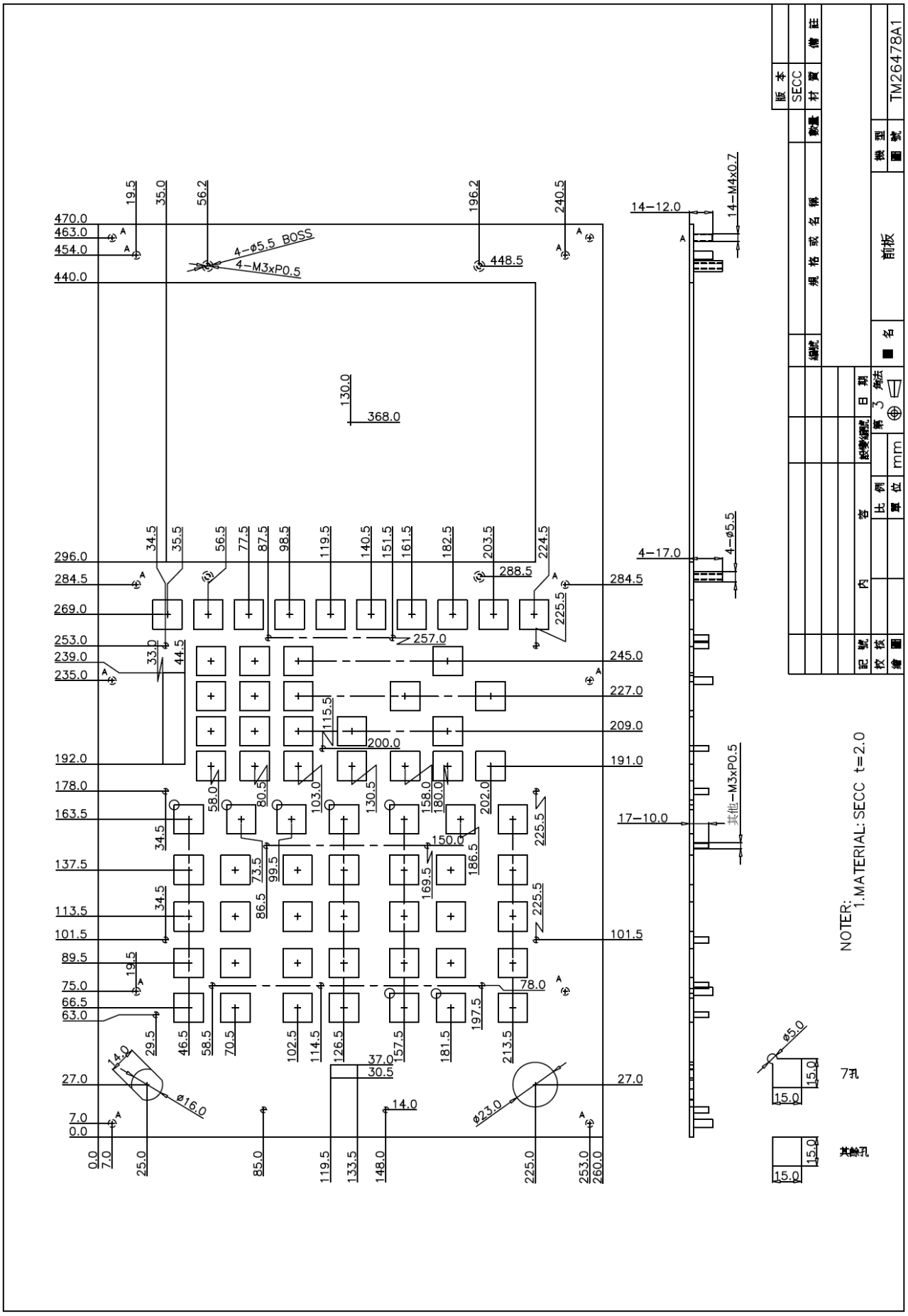
Potentiometer controller uses blue-black-blue 3P wire straight into PCN1. (Refer to below):

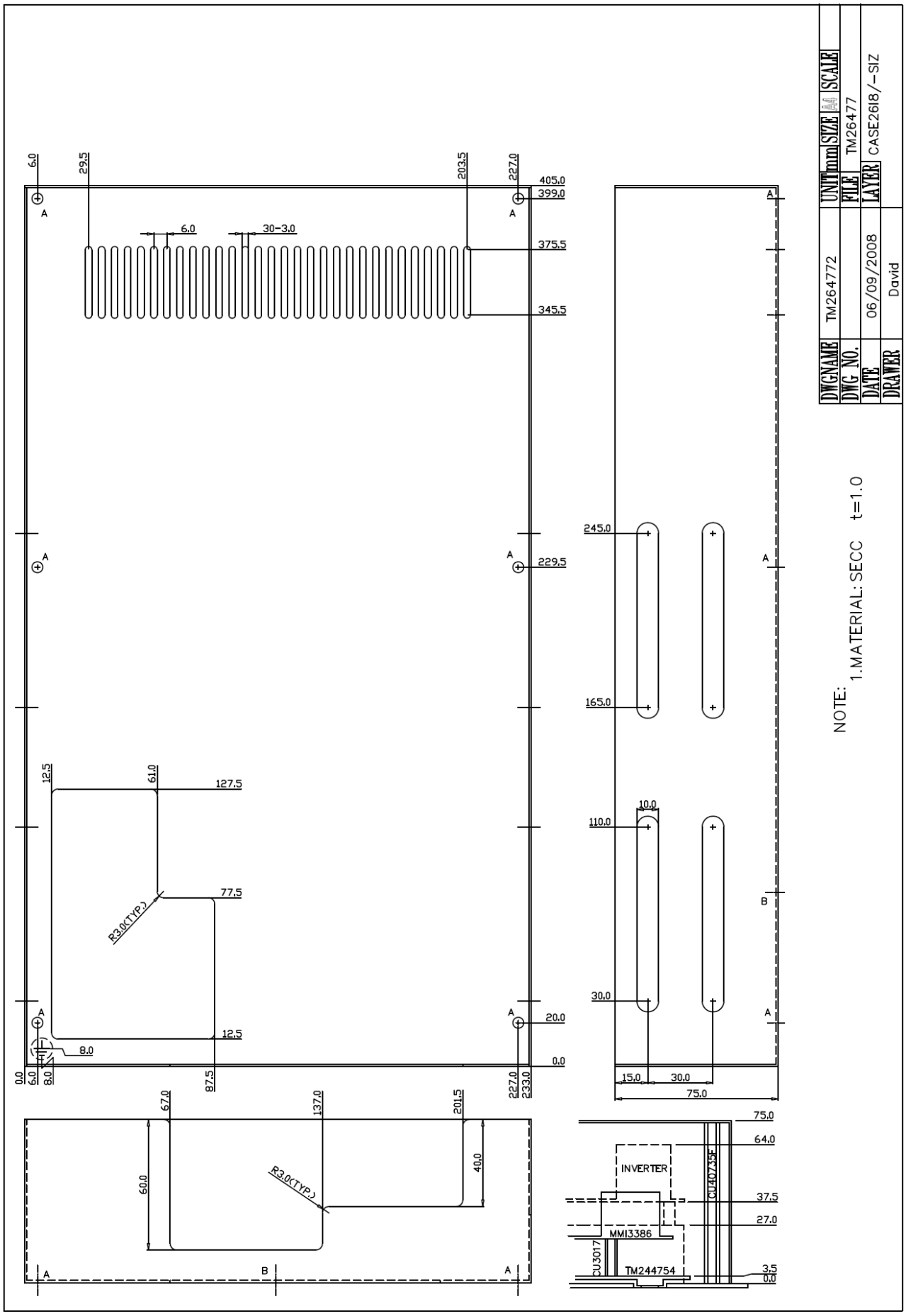


4. Operation Panel

Q8 Color panel dimension




TM26478A1
前板
SECC
NOTER:
1.MATERIAL: SECC t=2.0
4-ø5.5 BOSS
4-M3xP0.5
14-M4x0.7
4-ø5.5
其他-M3xP0.5
7孔
其餘孔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227.0
405.0
399.0
375.5
345.5
6.0
30-3.0
229.5
245.0
165.0
110.0
10.0
30.0
20.0
0.0
12.5
61.0
127.5
77.5
R3.0(TYP.)
12.5
8.0
0.0
6.0
8.0
87.5
227.0
233.0
15.0
30.0
75.0
67.0
137.0
201.5
60.0
40.0
R3.0(TYP.)
75.0
64.0
37.5
27.0
3.5
0.0
INVERTER
CU40735E
MMI3386
CU3017
TM244754
A
B
NOTE:
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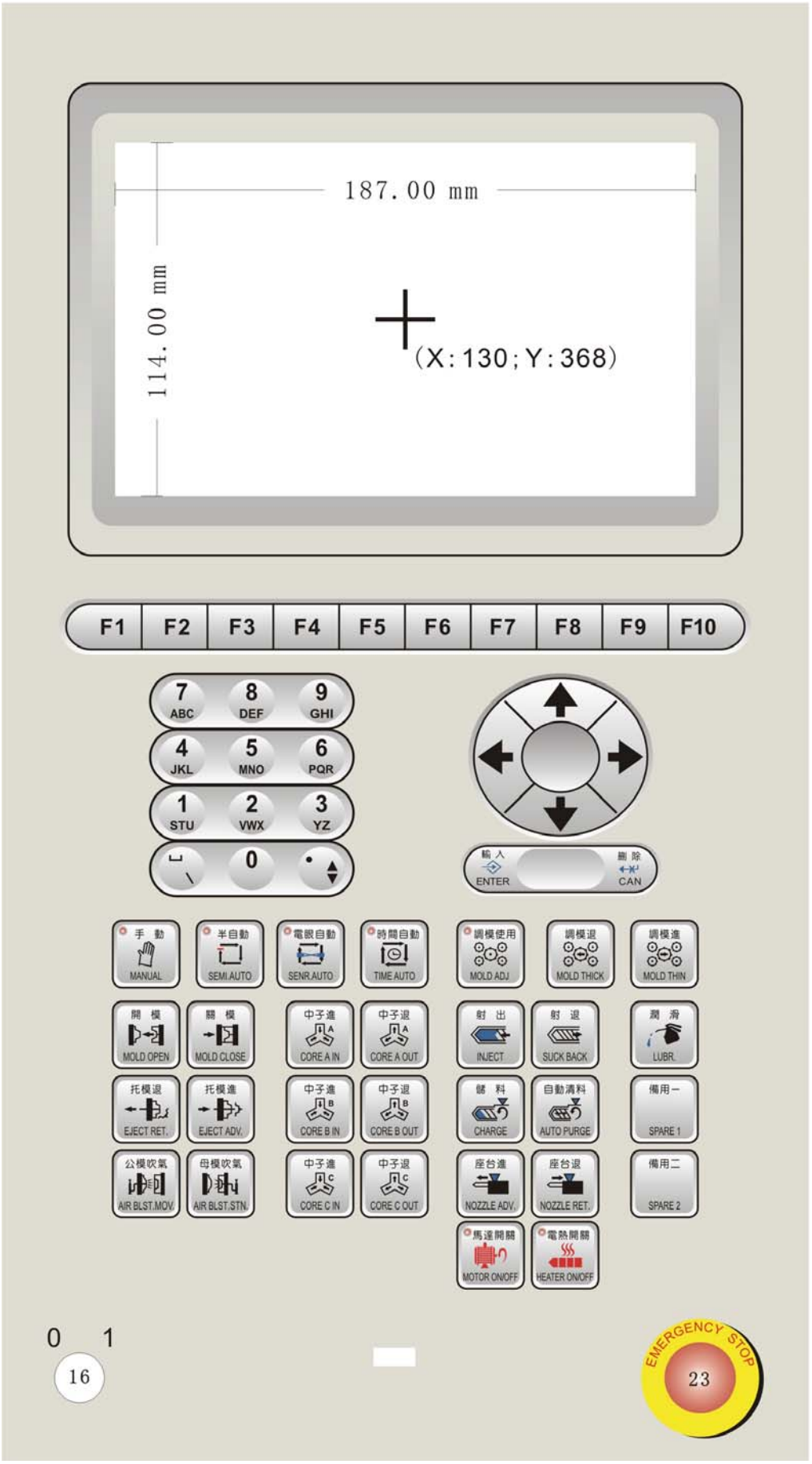
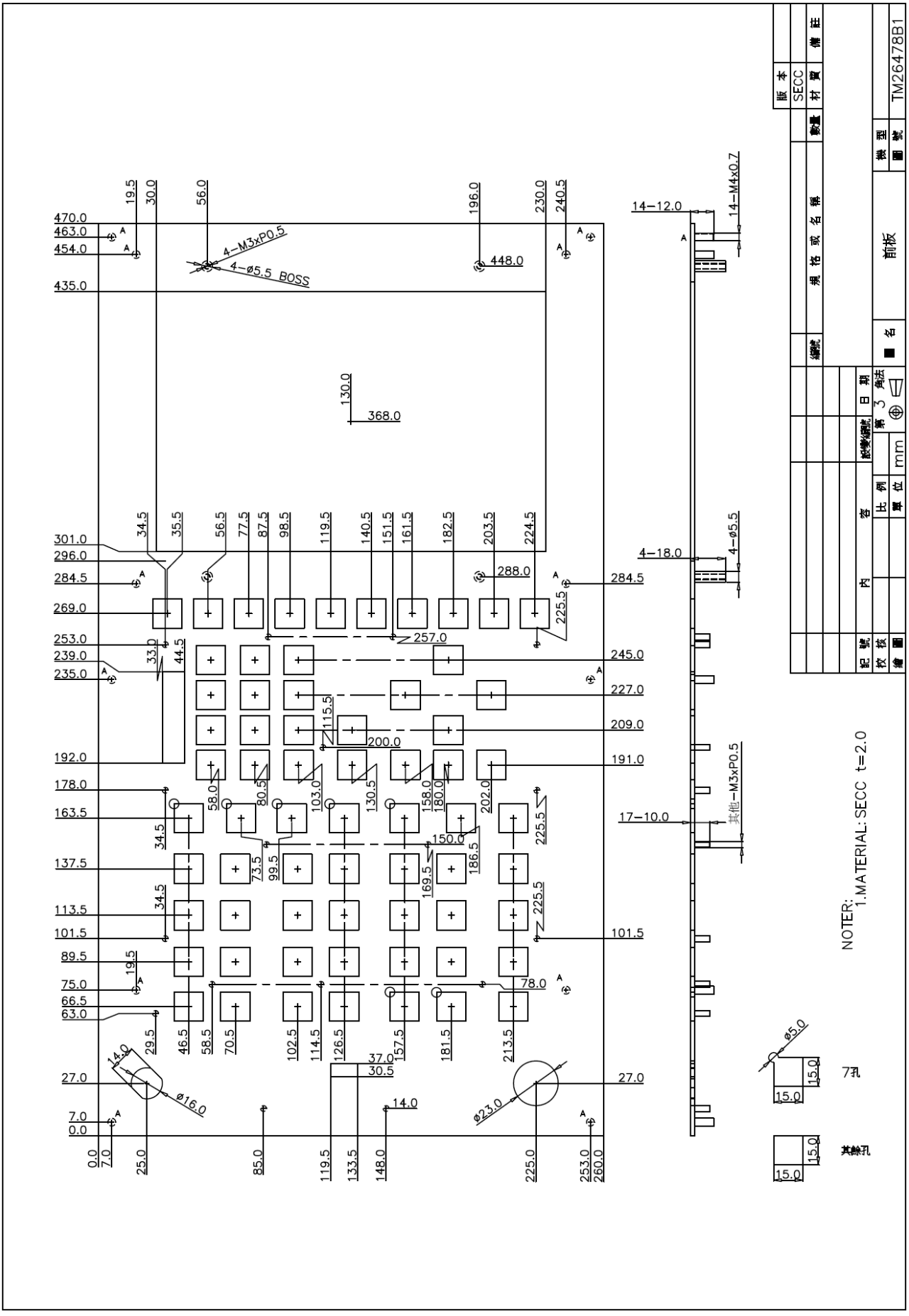
DWG NO.
DATE 06/09/2008
DRAWER David
UNIT mm SIZE A4 SCALE
FILE TM26477
LAYER CASE2618/-SIZ

V8 Color panel dimension




4-M3xP0.5
4-ø5.5 BOSS
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368.0
130.0
257.0
245.0
227.0
209.0
200.0
191.0
150.0
101.5
78.0
14-12.0
14-M4x0.7
4-18.0
4-ø5.5
17-10.0
其他-M3xP0.5
ø16.0
ø23.0
ø5.0
7孔
其餘孔
NOTER:
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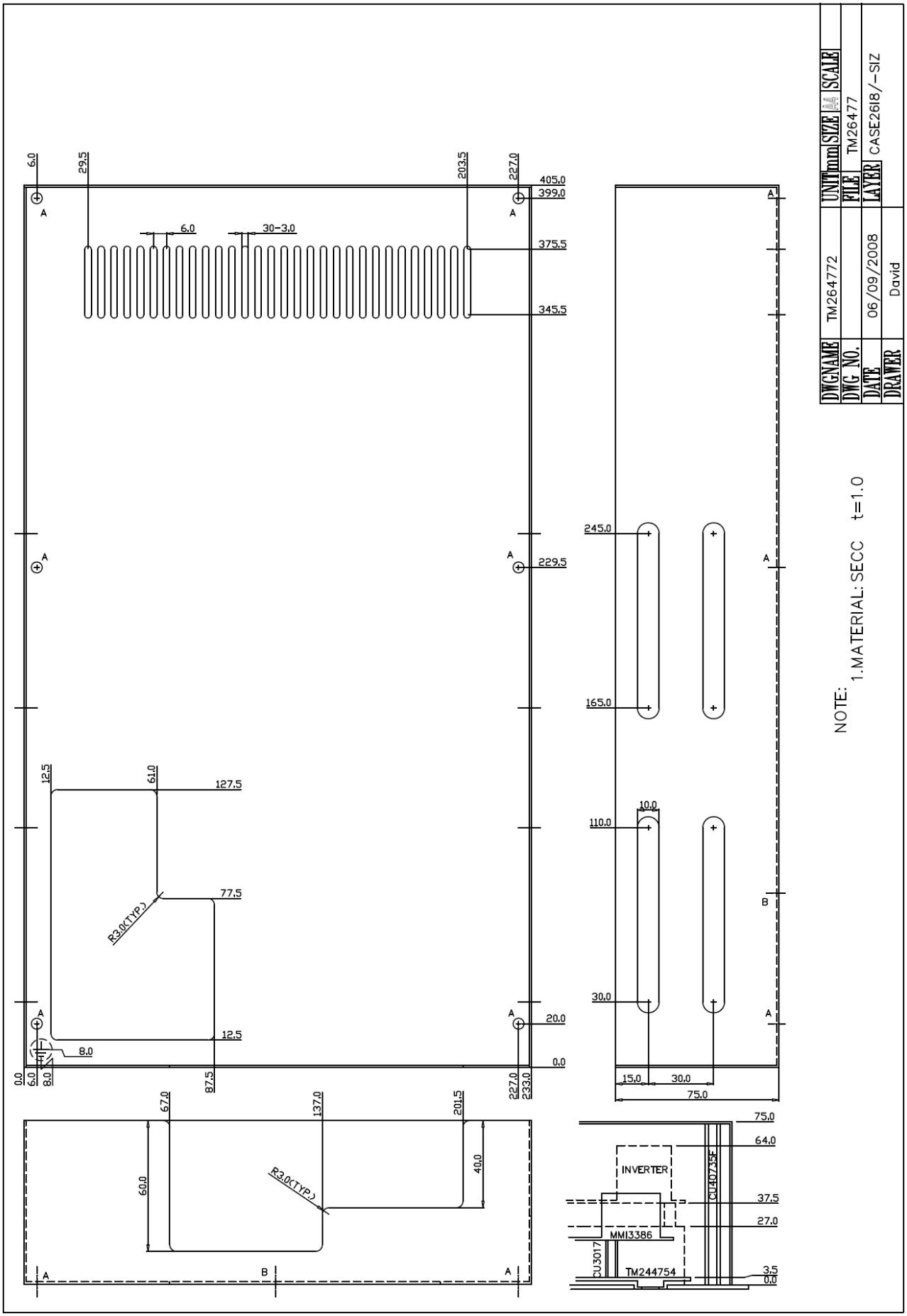
前板
TM26478B1
SECC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DWG NO.
DATE 06/09/2008
DRAWER David
UNIT mm SIZE A4 SCALE
FILE TM26477
LAYER CASE2618/-SIZ
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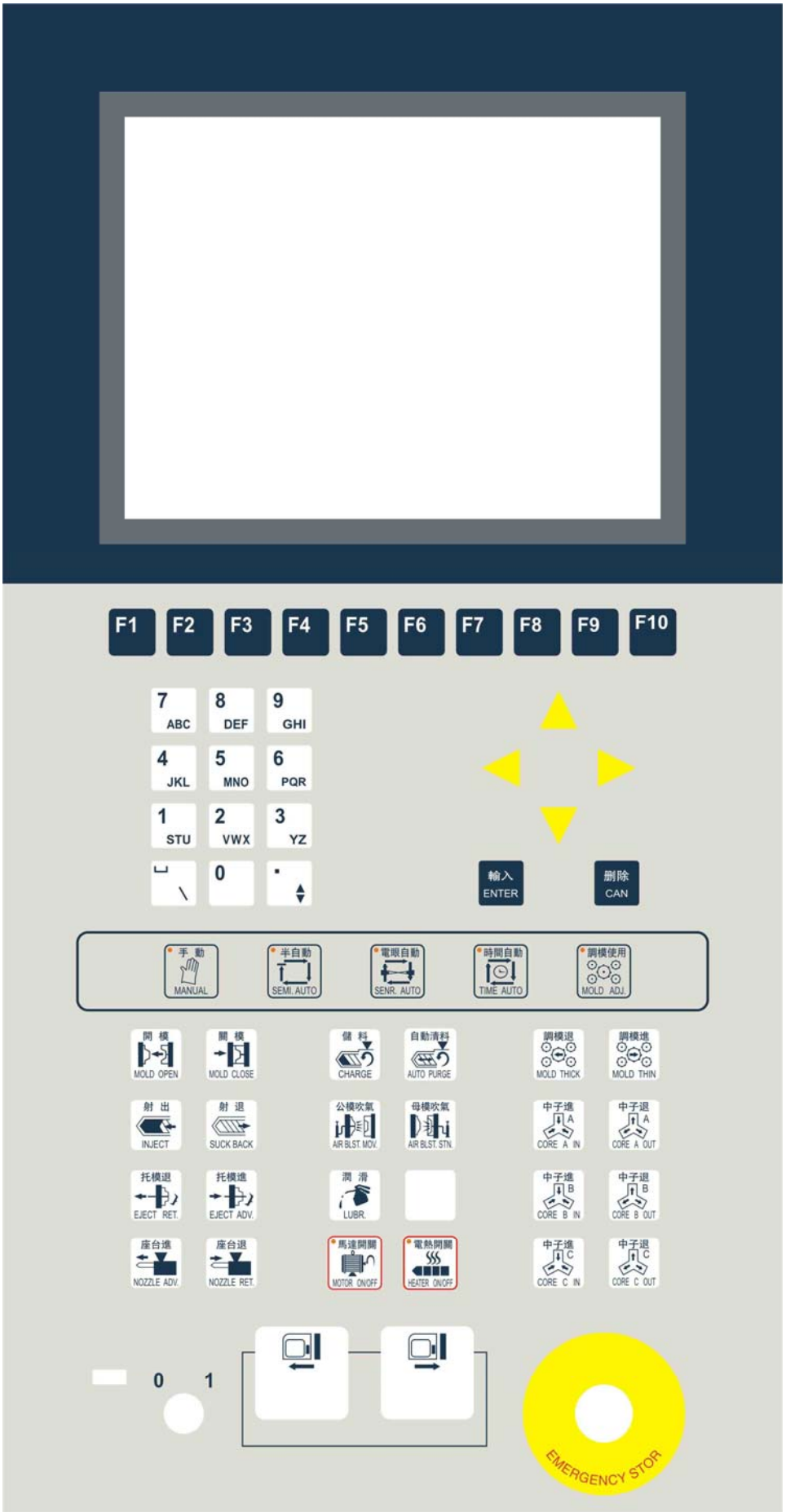
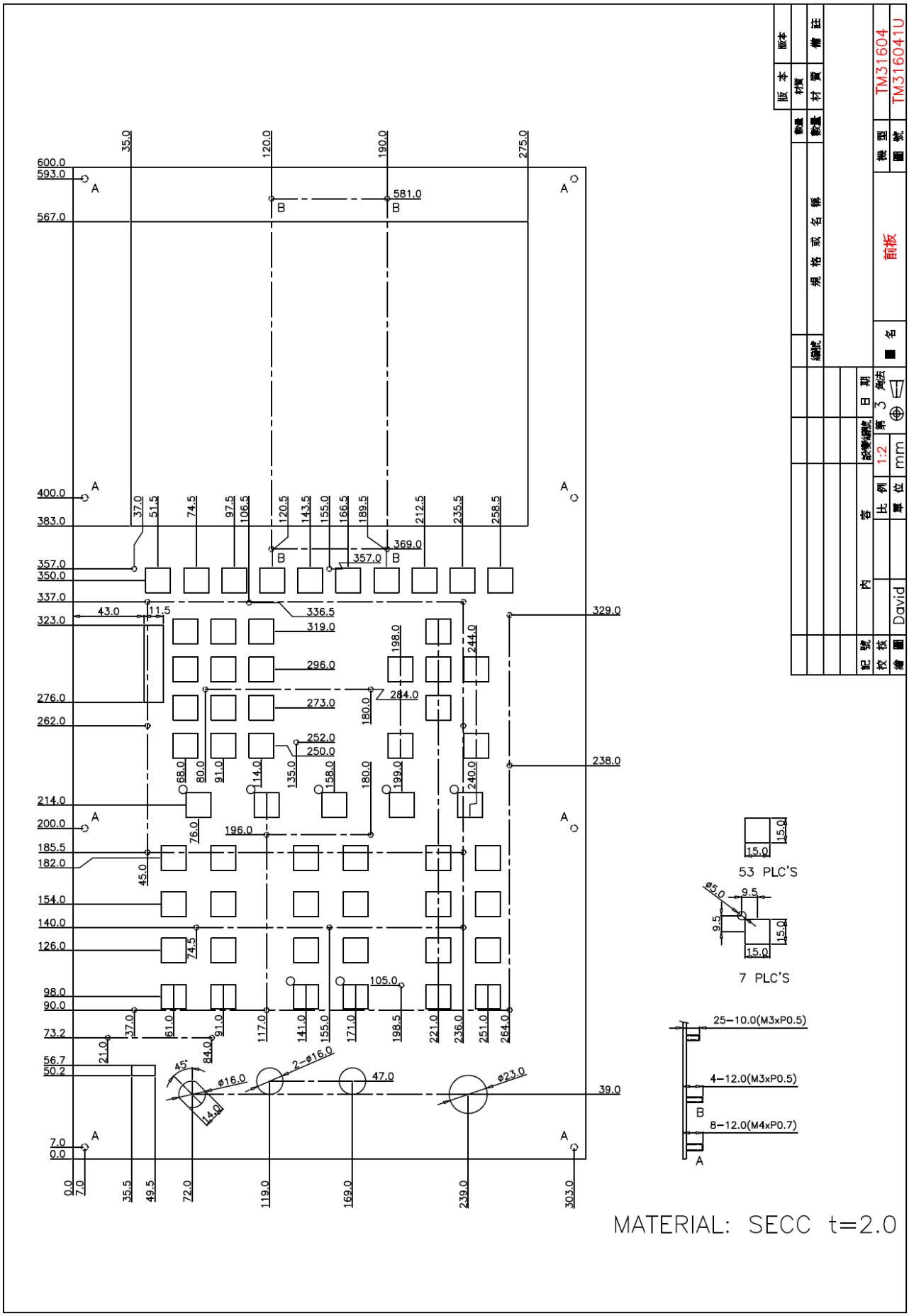
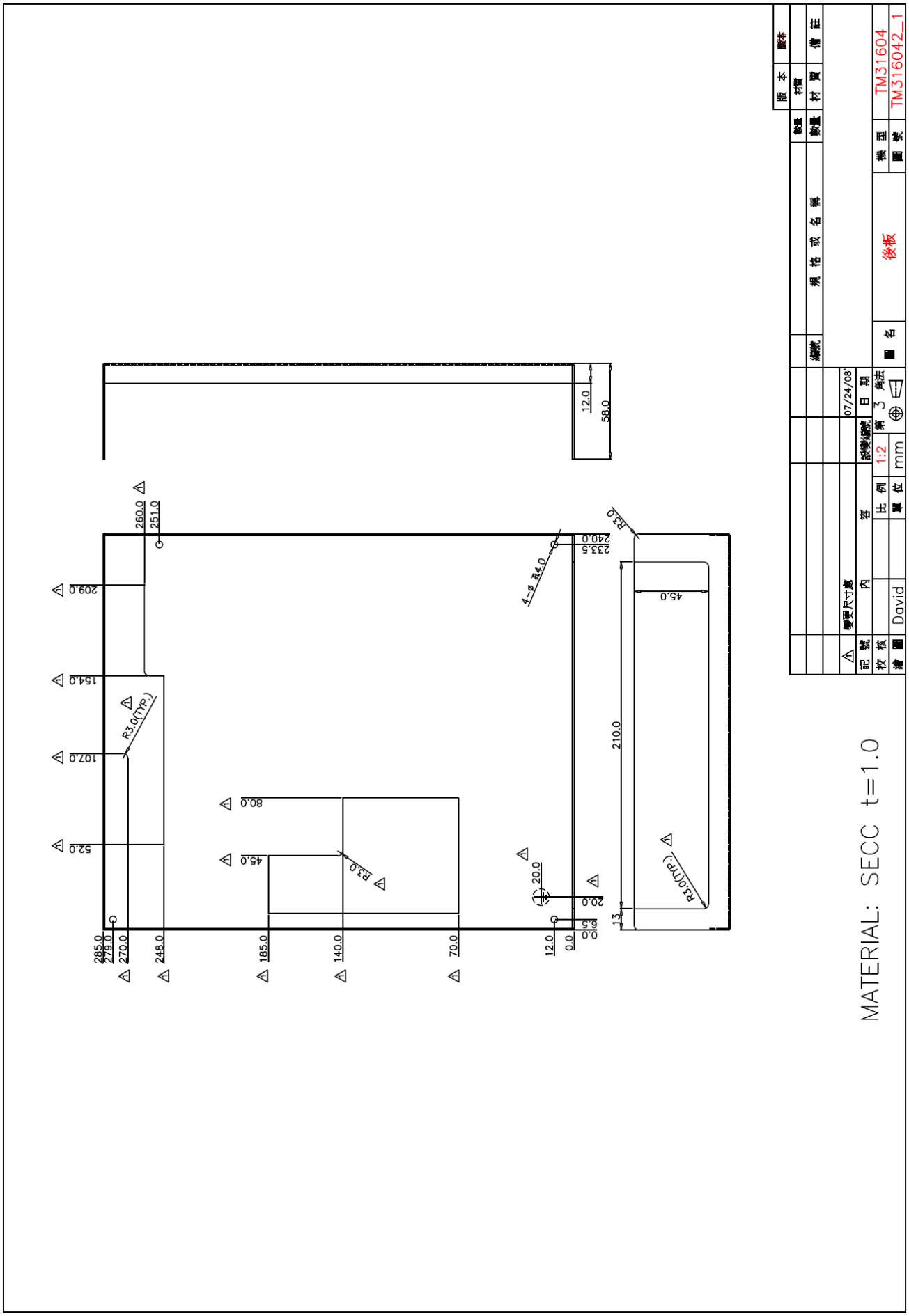
203.5
227.0
405.0
399.0
375.5
345.5
30-3.0
229.5
20.0
0.0
12.5
61.0
127.5
77.5
R3.0(TYP.)
8.0
97.5
233.0
245.0
165.0
110.0
10.0
30.0
15.0
75.0
67.0
137.0
201.5
60.0
40.0
64.0
INVERTER
CU40735F
37.5
27.0
MMI3386
CU3017
TM244754
3.5

M10M Color panel dimension




前板
TM31604
TM31604-1U
David
1:2
mm
53 PLC'S
7 PLC'S
25-10.0(M3xP0.5)
4-12.0(M3xP0.5)
8-12.0(M4xP0.7)
MATERIAL: SECC t=2.0


後板
TM31604
TM316042_1
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4-ø4.0
R3.0
R5.0(TYP.)
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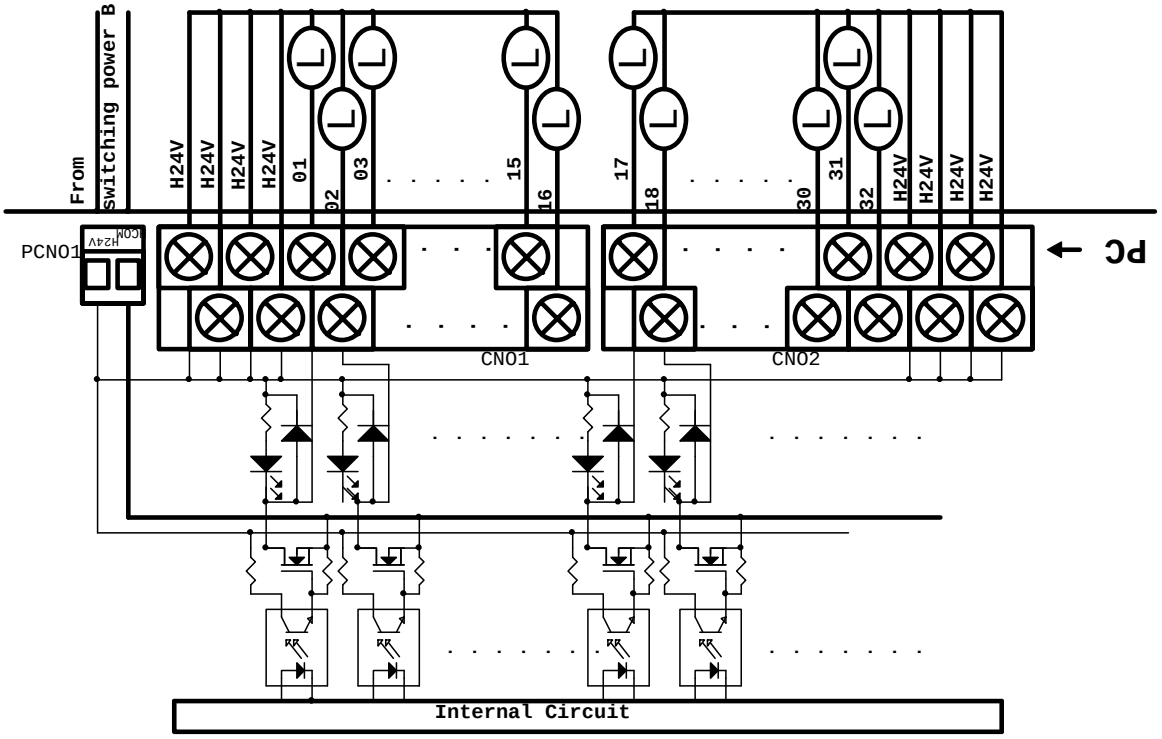
251.0
209.0
154.0
107.0
52.0
285.0
279.0
270.0
248.0
185.0
140.0
70.0
12.0
0.0
80.0
45.0
20.0
13
210.0
233.5
240.0
58.0

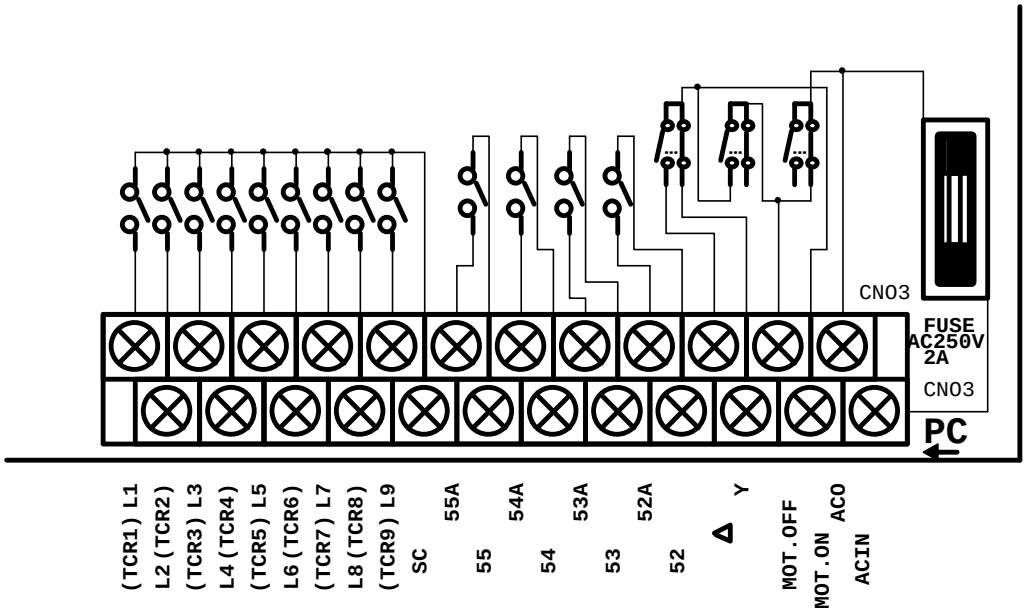
5. Directional Valve and Output Installation

1. This system provides 32 point DC24V director valve controller. The highest power each point can supply is 2A. It is not allowed to connect 2 directional valves at 1 point. If have to do so, please connect the RELAY to the controller and the shared point is H24V. If there is a load or misconnection of wire, switching power will be shut down automatically so it will not spoil the transistor. After repair the failure, please restart the switching power and the machine will run normally.

VALVE OUTPUT

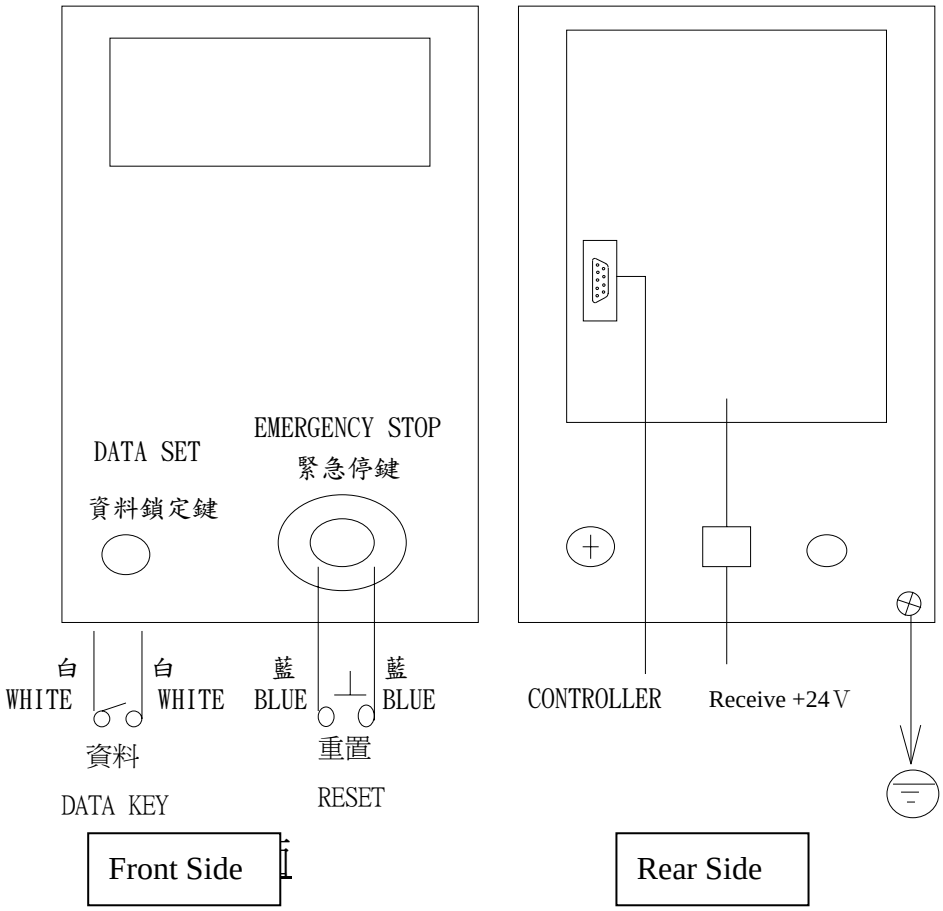


2. RELAY output, main controller board provides 16 groups of RELAY contact point for customer usage. These include circuit for *motor start*, *motor stop*, *Y-Δ converter*, *robot, heater controller* etc.



6. Operation Panel Installation

1. Please do not press on the flat cable at the back of the operation panel. It will cause the inner wire broken
2. There is a DC/DC converter +5V, +12V circuit line in the PCB (PCB is on the operation panel) for LCD and HMI usage. Connect the DC24V (blue and black) to switching power supply.
3. There are 2 white cables on the panel, must connect to *setting key*. If not, you can't set the information. The 2 blue lines are for RESET, can be leaved on it self. You can fix the emergency stop as *electrical emergency stop*. (refer chart below)
4. Please connect a line for ground connection from the panel to the copper board



7. LIMIT Installation

1.This system provides 32 input points.

2.If using Limit, the shared power supply point is HCOM. When Limit works, HCOM will input signal.

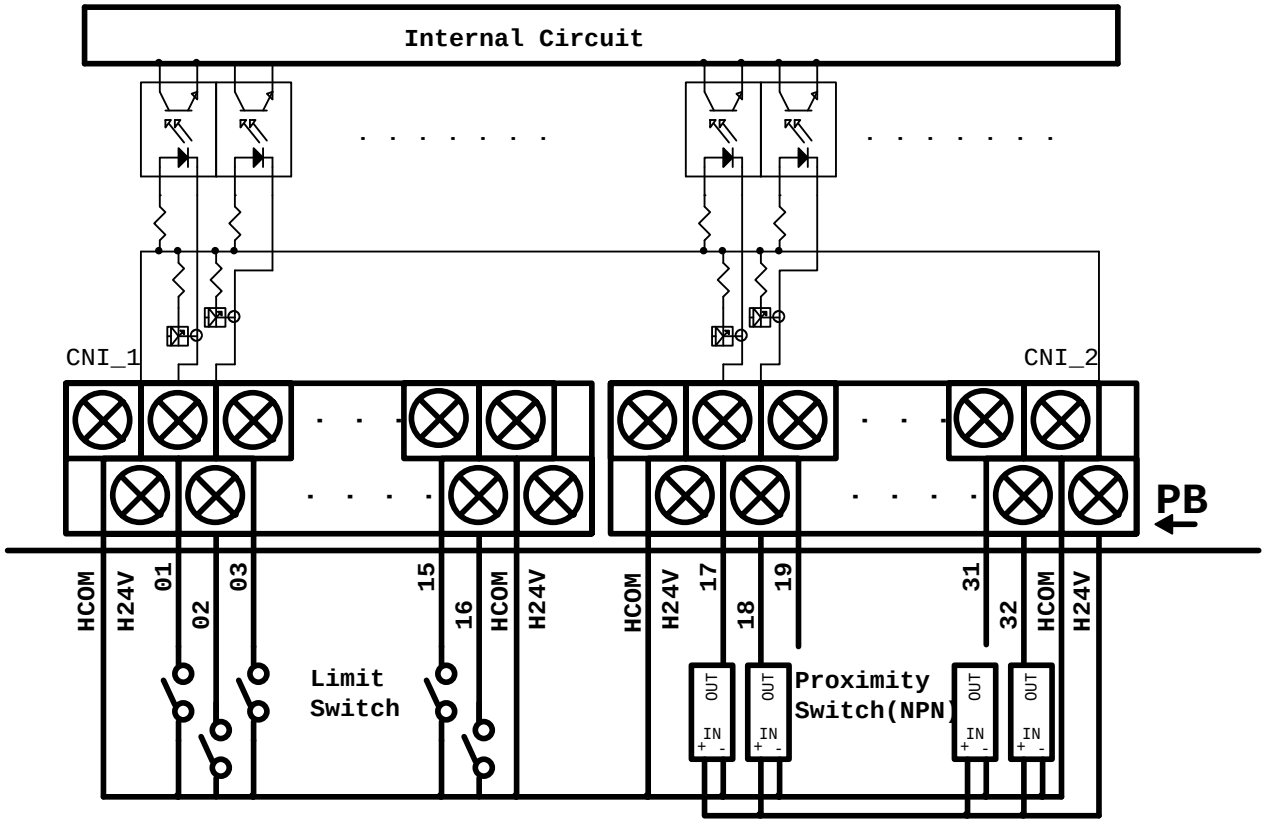
3.Power source for proximity sensor (type NPN) are H24V and HCOM, the signal for action is 0V(HCOM).

If there is other outer signal, must use low watt proximity sensor (This is because proximity sensor sink current is very low, can't afford the high power device).

If there is a COIL, must connect an opposite direction diode for protection.

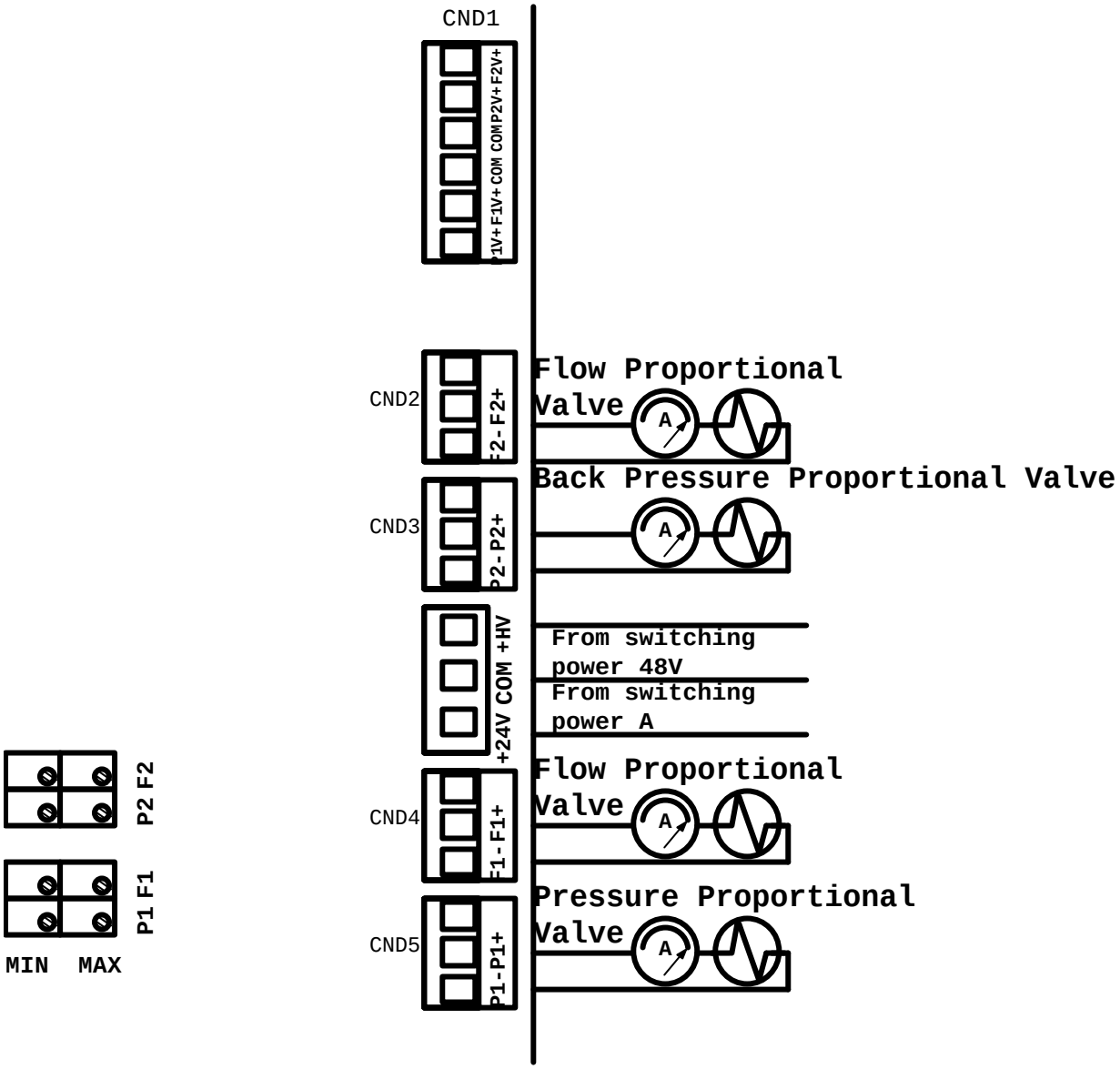
The arrangement is as below.

LIMIT INPUT



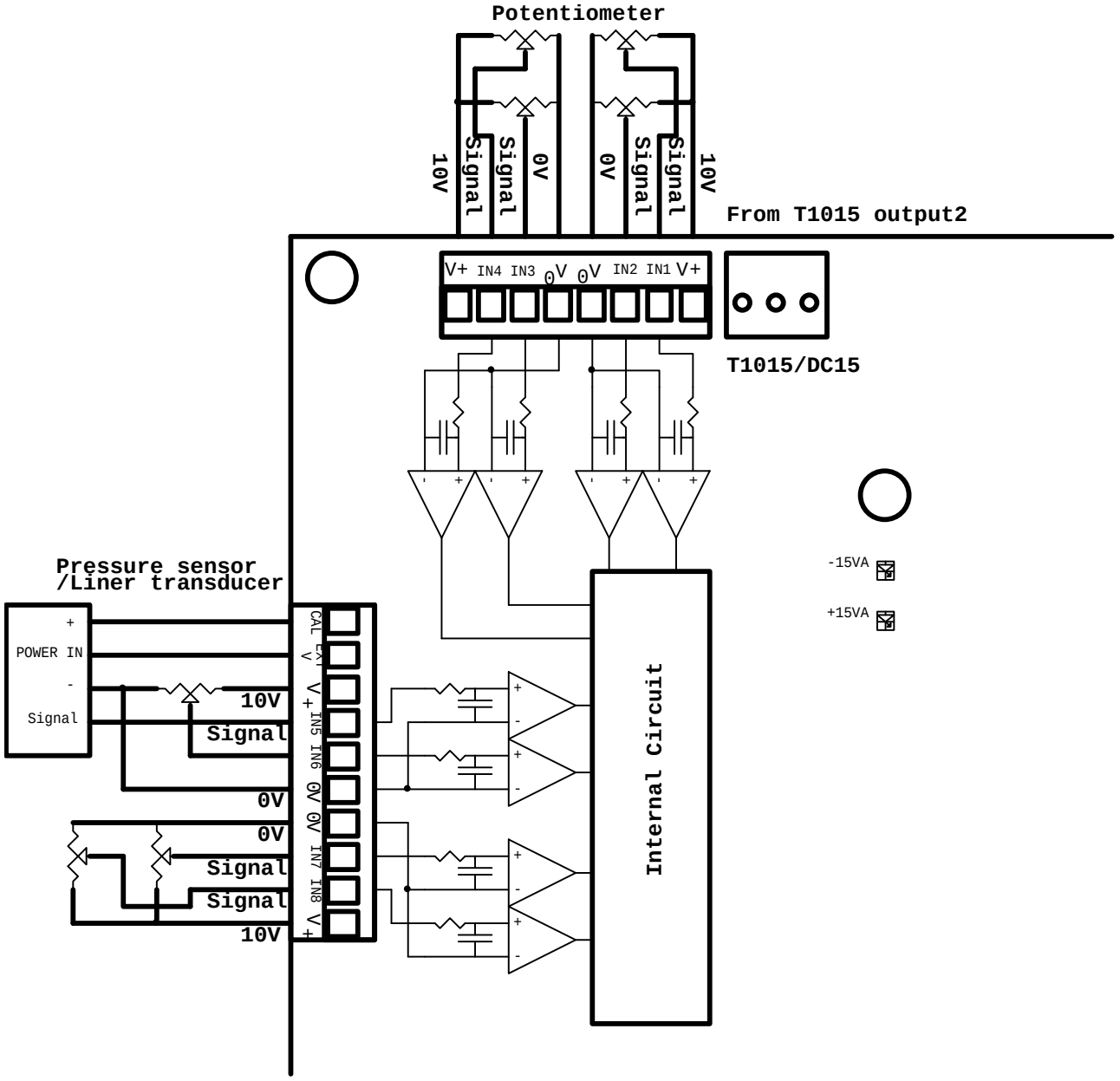
8. Proportion Valve Installation

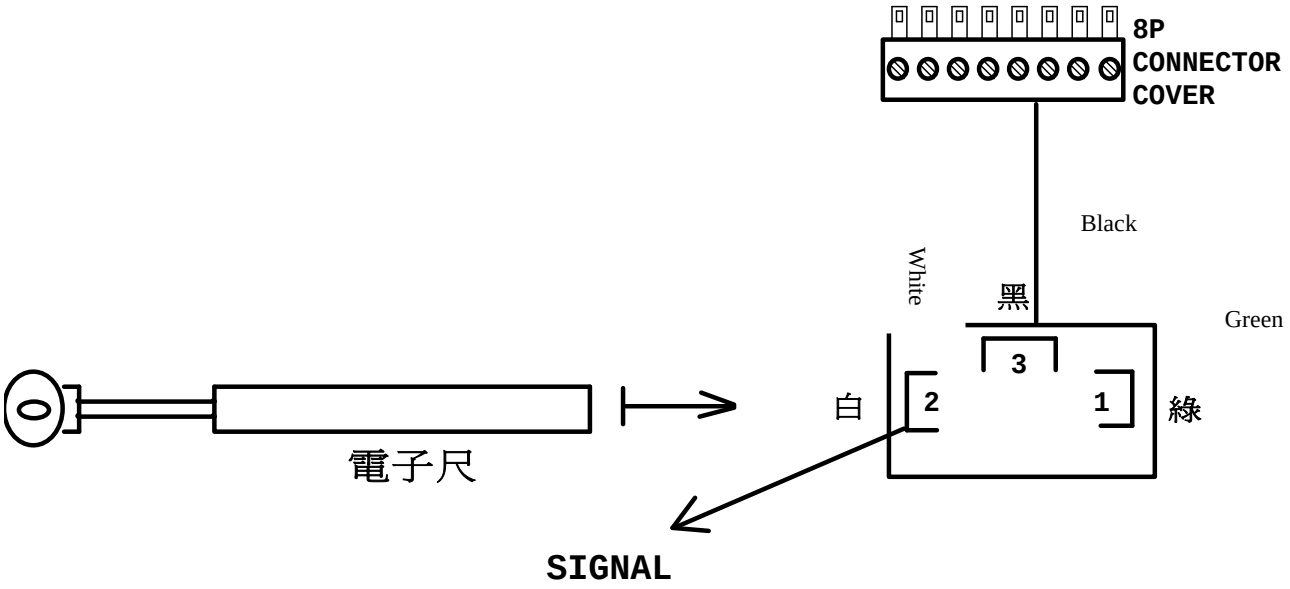
PCN4 3P connector (on the main controller CPU) is fixed to the switching power supply. On the other hand, CNDA2, CNDA3, CNDA4, CNDA5 outputs to proportion valves (manufactured by YUKEN, DIKEN etc.) are used to monitor the current meter at the proportion valve. To adjust the P1-MAX, P2-MIN, F1-MAX and F2-MIN rectification



8. Potentiometer and Pressure Sensor Installation

A/D board is the interface for potentiometer. It converts the voltage, big and small changes (analog/similar) reading from potentiometer to digital signal, to enable CPU to read it. This A/D board can control 8 types of potentiometers, which is the injection, mold clamping, and lastly ejection



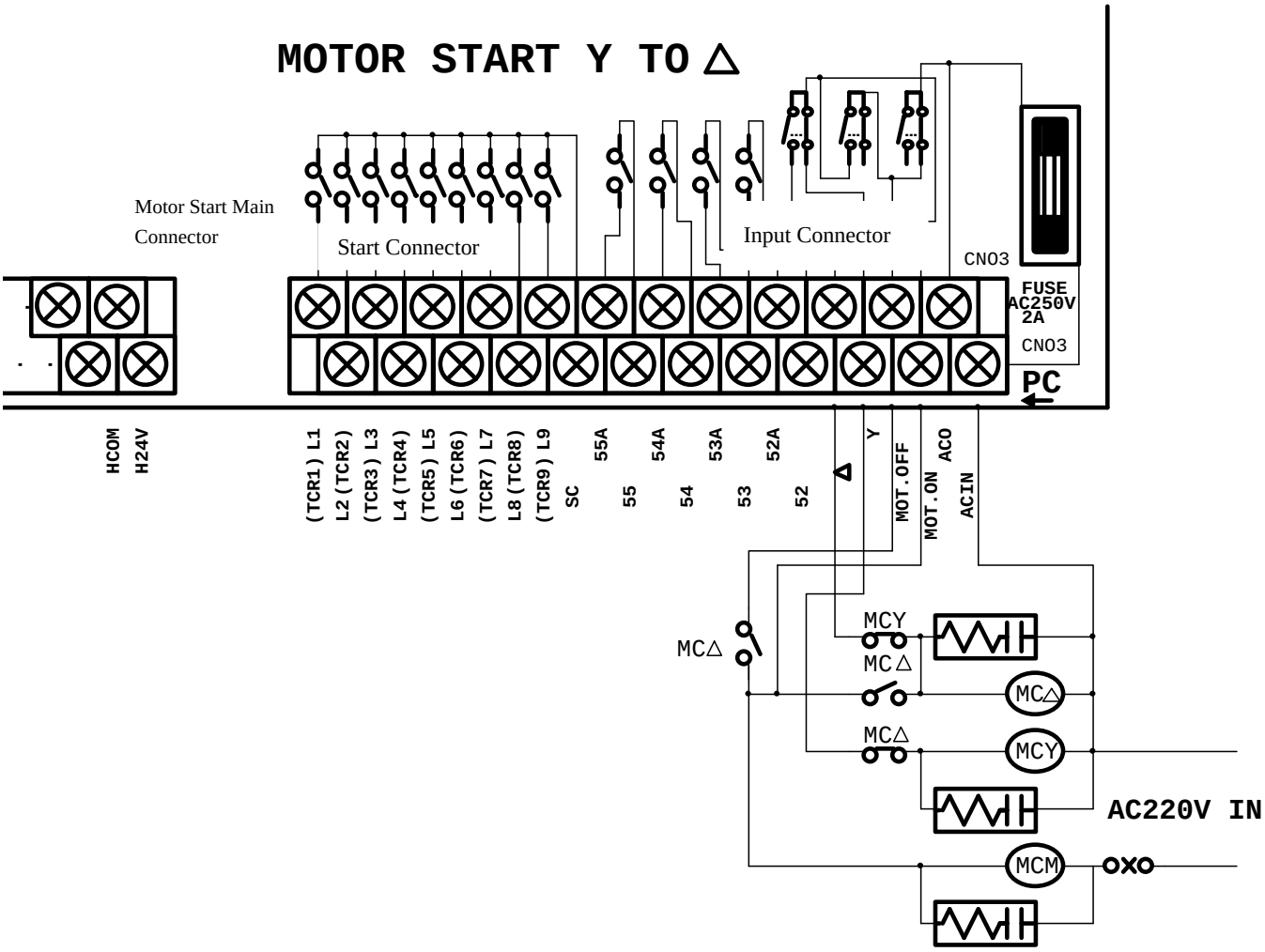


In the main controller, the potentiometer uses 3P power supply plugs. At the connector point as shown above, the PC board has 3P plugs and the 2nd pin must be connected to the signal output pin. Normally, the potentiometer prolongation has the biggest value and the back contract has the smallest value. If the direction reverses, the potentiometer 1st and 3rd pin of the plug will be immediately changed (it changes the +ve and – ve pole). Keep in mind not to disconnect the signal; else it will cause the damage to PC board or potentiometer.

Please refer to operation manual for potentiometer reset. Choose the length of potentiometer longer than the machine length to avoid being pulled apart.

9. Motor Start Circuit Diagram

9.1 Y-Δ start



9.2 Strait start diagram