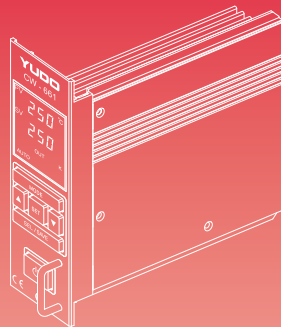


User Manual

TEMPERATURE CONTROLLER - CW 661

tüv
CE
ISO9001:2008



CW 661 Unit



MODEL : CW 661

English

 **YUDO**

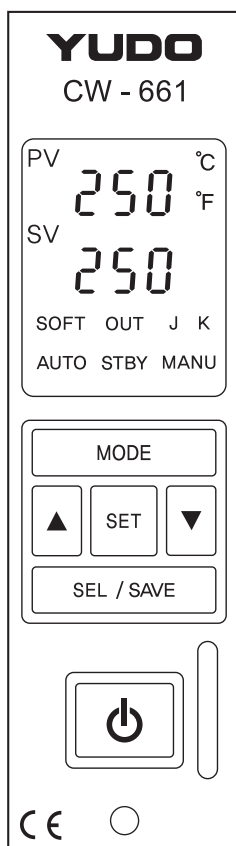


CW 661

Thank you for using YUDO product.

Before using the product, please read this instruction manual carefully to avoid any damage due to improper usage.

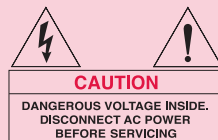
If you have any questions, please do not hesitate to contact our Head Office or your nearest YUDO Office.



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1. Items to Check before using Controller & Operation



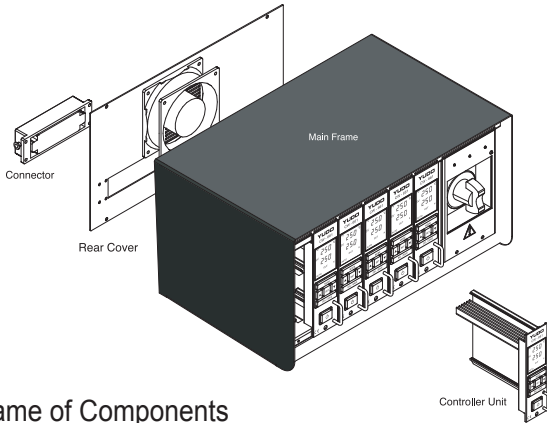
- 1) Check the wiring status of the connector attached to the mold and the type of T/C.
- 2) Check if the power lines are separated from the T/C lines, and they are arranged in order.
- 3) Check if the trunk specification fits to the Controller.
- 4) Check the connection and wiring state of the trunk.
- 5) Check resistance, insulation state and disconnection of Heater & T/C.
- 6) After the mold is fixed on the injection machine, connect the trunk.
- 7) Check if the Power Switches of the Main & Units are off.
- 8) If Input Voltage (220V/380V) fits the controller voltage specification, connect Power Cable. (Input power voltage is noted on the label of the controller case. If the power input voltage does not fit to that written one on the label, Contact a territory office and correct the controller wiring. False wiring can cause malfunction of the controller and damage on the unit).
- 9) Make sure to earth ground wire of the controller.
(Neglect to earth the ground wire (green line) can cause damage to Fuse and Triac due to noise voltage)
- 10) Turn on the Main Power Switch first.
- 11) Then, turn on the Unit Power switch.
- 12) Input the setting temperature value.
- 13) Check if the controller operates well. (Heat-up stabilization)

CAUTION

- (1) To prevent possible malfunction of the temperature control modules, the cooling fan **MUST OPERATE AT ALL TIMES**.
- (2) Main power switch should be off in case of changing Unit, unless it can cause malfunction control.

2. Structure of Controller

▶ Installation Condition : The bottom side is blocked for the safety.



3. Name of Components

	1. PV FND	Displays Measured Temperature (Red 4 Digit-Position Value)of Hot Runner System
	2. SV FND	Displays the Set Temperature (Green 4 Digit-Set Value)of Hot Runner System
	3. °C/°F LED	Temperature unit Setting value display
	4. SOFT LED	Displays SOFT operation
	5. OUT LED	Displays Power Output State
	6. J/K LED	Temperature sensor (TC) Setting value display
	7. AUTO LED	Displays Auto Mode is selected
	8. STANDBY LED	Displays Standby Mode is selected
	9. MANUAL LED	Displays Manual Mode is selected
	10. MODE	Operation switch, User Mode operation key
	11. ▲	Value Increase Key
	12. ▼	Value Decrease Key
	13. SET	Changing cipher key
	* . SET+MODE	Supplier's Menu
	14. SEL/SAVE	Select mode (AUTO, STANDBY, MANUAL) & save the changes
	15. Handle	
	16. Power Switch	
17. Lock Bolt		

* Caution. Keypad is made of Silicon rubber. Don't touch the keypad by Drill, Ballpoint pen and the sharp edged things.

4. Environmental conditions & Specification of Controller Unit

■ Input Power / Frequency	AC 85 ~ 250V, 50/60Hz (50/60Hz auto sensing)
■ Temperature	-10℃ ~ 50℃
■ Humidity	0 ~ 90%
■ Output Method	Zero Cross(SSR), Phase Angle(PWM)
■ Capacity	15A, 1Zone/Unit
■ Sensor Type	Thermocouple IC(J) / CA(K)

5. Summary of Controller & Temperature Controller Method

1) Summary of Controller

The controller is a device that has a function to maintain the desired temperature consistently by sensing the state of Hot Runner System with high-intellectual computer system named CPU and input proper power.

2) Temperature Control Method

For accurate temperature control, the following features are maintained.

- (1) Temperature Range : 40℃ ~ 400℃ / 104°F ~ 752°F
- (2) Accuracy : $\pm 0.1^{\circ}\text{C}$
- (3) Calibration of Temperature deviation : It can calibrate the difference between actual & Setting temperatures manually.
- (4) Temperature control by : PID control
 - ① PID control

Is a method in order to maintain temperature at the set temperature accurately by controlling output power reflecting proportion, integration, and differentiation values.
 - ② PID Auto Tuning control
 - Auto Tuning

Is a function to extract the control constant through analyzing the capacity of heaters and the heat constant of the mold. It helps to make precise temperature control regardless of environmental change.
 - Relay (ON/OFF) Tuning

Is a function to relay Tuning by one touch button-on in Supplier's Mode, in case the temperature can not be controlled by Auto Tuning. (Overshoot can occur in this case)
 - Manual PID control constant input

Is a function to control by manual input of PID constant.
(in case the temperature can not be controlled by Auto Tuning)

3) Auto Tuning

It fulfills Auto Tuning Function automatically in case difference between actual and setting Temperature is over 50℃ In supplier's Mode, It can be done by manual, In case the Temperature difference is below 50℃ (Refer to page 15-Relay Tuning)

6. Protective Functions

- 1) **Ground Fault Inspection** Is a function to self-inspect short-circuit between H/T and frame Ground, and stop input power.
- 2) **T/C Disconnection inspection** Is a function to inspect itself T/C disconnection, short-circuit or reverse connection, and stop input power.
- 3) **Over current Inspection** Is a function to stop input power to avoid damages by over current in case of H/T short-circuit.
- 4) **Soft-start** When power on, output starts from 1% and increases by 1% per second up to 50%. The output stays at 50% till 110°C. This function prevents heaters from humidity-caused damage by preheating slowly.

7. Operation Mode

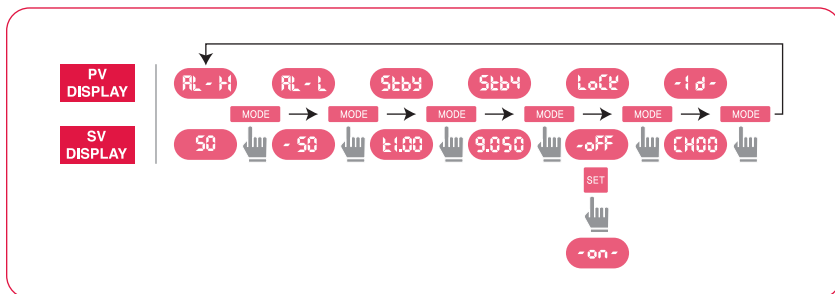
Operation Mode select : **SEL / SAVE** key is converted by holding for 2 seconds.

- 1) **AUTO Mode** Normal operation mode in which the temperature is controlled and maintained automatically in accordance with the Setting value.
 - (1) Display conversion : When **MODE** key is pressed, the display on SV is converted as the following order.
[Set Temperature]=>[Output %]=>[Ampere] =>[Set Temperature]
- 2) **STANDBY Mode** Down the Output Power to the Given Rate for the given time, in production pause for a while.
 - (1) Holding **SEL / SAVE** key for 2 seconds in Auto mode will convert it into STANDBY Mode. (Manual Mode is automatically converted, in case STANDBY setting time is "0". Default 1 hour)
 - (2) Temperature setting value(SV) is changed into % rate on the basis of the Set Temperature during Stand-by mode.
 - (3) STANDBY mode finishes after the given time is up, and moves to AUTO Mode. (Refer to page 9)
- 3) **MANUAL Mode** Is a function to operate by manual on emergency that user can set output volume with **▲** , **▼** key.
 - (1) Push **SEL / SAVE** key 2 times each for 2 seconds in Auto Mode, and it will be converted into Manual Mode.
 - (2) This function is automatically converted in case of tC.oP, tC.St, tC.rE, Ht.St, Ht.oP, triac short-circuit.
 - (3) Available to change setting value(%) with **▲** , **▼** key.

8. Menu Setting

1) User's Setting Menu

► User's Setting Menu Diagram



- Press **MODE** key for 3 seconds in order to start User's Setting menu.
- **MODE** key is for Selecting Function and, **▲**, **▼** key is for changing parameter.
- **SEL / SAVE** is for setting finish or present value is replaced automatically with Set Value unless any key is pressed for 5 seconds.

(1) AL-H (High Limit Alarm Function)

On the basis of the Set Temperature, when the temperature become higher than Setting Value, the AL-H function is operated.

- ① When **MODE** key is held for 3 seconds, AL-H is displayed on PV, and the High Limit Value for AL-H is displayed on SV.
- ② **SET** key for changing cipher, **▲**, **▼** key for changing setting value. (setting value is available 00 - 99. Originally set by 50)
- ③ **SEL / SAVE** key for setting finish.

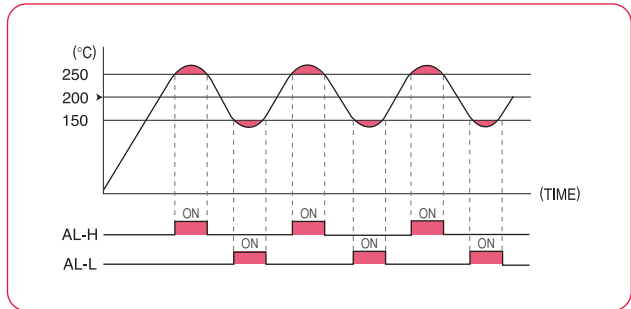
(2) AL-L (Low Limit Alarm Function)

On the basis of the set temperature, when the temperature is lower than the Low Limit Setting Value, the AL-L function is operated.

- ① For the first push **MODE** key for 3seconds, AL-H is displayed on.
- ② Push **MODE** key once more, and it will be converted AL-L(PV) with setting value display(SV)
- ③ **SET** key for changing cipher, **▲**, **▼** key for changing setting value. (setting value is available -99 - 00. Originally set by -50)

- ④ **SEL / SAVE** key for setting finish.
- ⑤ Ex) In case SV(Temperature Setting) is set as 200 °C,
AL-H(High Limit Alarm) as 50 °C,
AL-L(Lowest Limit Alarm) as -50 °C :

▶ AL-H start at 250 °C of measured temperature, AL-L at 150 °C



(3) StbY (STANDBY Setting)

① t (STANDBY Time Setting)

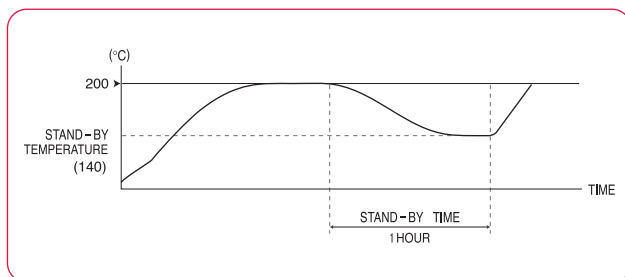
- Hold **MODE** key for 3 seconds and find AL-H is displayed on PV. Then press it **MODE** key twice more until Stby will be displayed on PV.
- STANDBY Time can be adjusted from 0 (minutes) till 9 hours 59 minutes by use of **▲**, **▼** keys.

② g (STANDBY Temperature Setting)

- At the state of STANDBY Time setting, Push **MODE** key to convert into Stby Temperature Setting Mode.
- STANDBY MODE temperature value will be displayed on SV.
- **SET** key for changing cipher, **▲**, **▼** key for changing setting value. (setting value is available 00 - 200.)
- **SEL / SAVE** key for setting finish.

- ③ Ex) In case SV(Temperature Setting) is set as 200,
t (STANDBY Time) as 1hour (1:00),
g (STANDBY Temperature%) to g.60 :

▶ STANDBY Mode operating time is 1 hour with
140 °C(200 °C(setting temperature)-60 °C(g.60) setting temperature range.



(4) LOCK (Key SW Locking device)

This is a function to prevent from the change of parameter by mistakes of user.

- ① Hold **MODE** key for 3 seconds, and find AL-H is displayed on PV.
- ② Press it 4 more times until LOCK is displayed on PV, then you can see the OFF on SV.
- ③ Choose ON or OFF with **▲**, **▼** key.
- ④ **SEL / SAVE** key for setting finish.

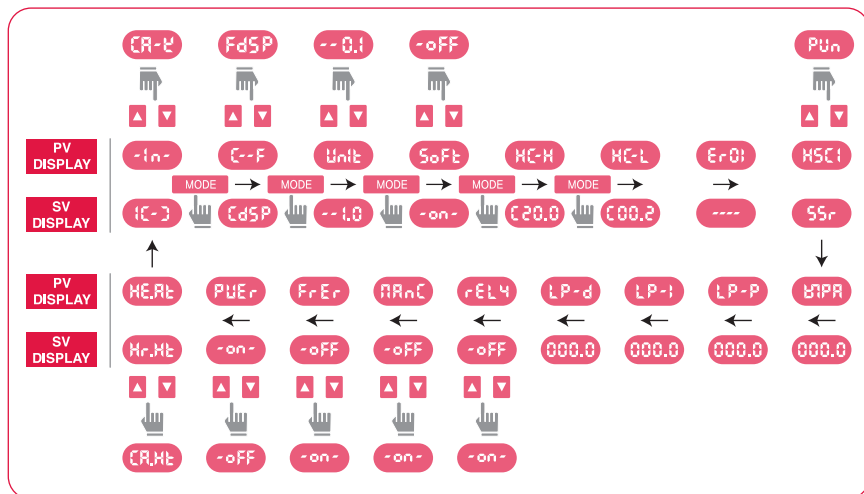
(5) Unit ID Setting (Integrated Management System-Option)

This is provided to help the Integrated Management for many Controller Units. The computer in Central Control Office could control each Unit according to it's own ID number.

- ① Integrated Management System must be installed additionally in order to use Integrated Management Function
- ② Hold **MODE** key for 3 seconds until AL-H is displayed on PV.
- ③ Press it 5 times more, until -id- is displayed on PV, then the channel ID is displayed on SV
- ④ The value can be set from 00 to 63 with **▲**, **▼** keys.
- ⑤ **SEL / SAVE** key for setting finish.

2) Supplier's Setting Menu

► Supplier's Setting Menu Diagram



- Hold **MODE** and **SET** keys for 3 seconds at the same time.
- **MODE** key is for Selecting Function and, ▲, ▼ key is for changing parameter.
- **SEL / SAVE** is for setting finish or present value is replaced automatically as Set Value unless any key is pressed For 4 seconds.
- Setting is available only in LOCK OFF status.

(1) -IN- (Sensor selecting function)

Type of Thermocouple can be selected to measure the Heater Temperature.

- ① Hold **MODE** and **SET** keys for 3 seconds together. Then - IN - will be displayed on PV, and IC(J) or CA(K) (sensor type) will be displayed on SV
- ② Sensor Type can be selected with ▲, ▼ key.
- ③ **SEL / SAVE** key for setting finish.

(2) C-F(Celsius and Fahrenheit degrees Selection)

Each Celsius or Fahrenheit (°C/°F) degrees can be selected for temperature units.

- ① Hold **MODE** and **SET** keys for 3 seconds at the same time, then - IN - will be displayed on PV.
- ② Press **MODE** key again to display C-F on PV and CdSP/FdSP (selected temperature display type) on SV.
- ③ Temperature unit can be selected by **▲**, **▼** key.
- ④ **SEL / SAVE** key for setting finish.

(3) UNIT(Temperature display Unit Setting)

This is a function to select Temperature Units displayed. You can choose 1.0 or 0.1 for temperature units.

- ① Hold **MODE** and **SET** keys for 3 seconds together. Then - IN - will be displayed on PV.
- ② Press **MODE** key two times more to display the corresponding unit on PV, and 1.0 or 0.1(Temperature setting unit) will be displayed on SV.
- ③ Temperature units can be selected with **▲**, **▼** key.
- ④ **SEL / SAVE** key for setting finish.

(4) SOFT (SOFT START setting)

- ① Hold **MODE** and **SET** keys for 3 seconds at the same time. Then - IN - will be displayed on PV.
- ② Press **MODE** key three more times to display SoFt on PV and on/OFF on SV.
- ③ SOFT START (ON/OFF) can be selected with **▲**, **▼** key.
- ④ **SEL / SAVE** key for setting finish.

(5) HC-H (High Limit Current Setting)

This is provided to detect malfunction of the heater(disconnection). It displays "HtSt" alarm sign, and stops output, when the current becomes bigger than the high limit .

- ① Hold **MODE** and **SET** keys for 3 seconds at the same time. Then - IN - will be displayed on PV.
- ② Press **MODE** key 4 times more to display HC-H on PV and the High Limit Current Value on SV.
- ③ The value can be changed by use of **▲**, **▼** key.
- ④ **SEL / SAVE** key for setting finish.

* HtSt error can occur, In case HC-H Setting Value is lower than Heater Capacity itself (Setting value is 20C)

(6) HC-L (Low Limit Current Setting)

This is a function to detect malfunction of the heater (disconnection). It displays "Ht-oP" alarm sign, and stops output when the current is smaller than the Low Limit.

- ① Hold **MODE** and **SET** keys for 3 seconds at the same time, then -IN- will be displayed on PV.
- ② Press **MODE** key 5 times more to display HC-L on PV, and the lowest limit current value on SV.
- ③ The value can be changed by use of **▲**, **▼** key.
- ④ **SEL / SAVE** key for setting finish.

* Ht.oP error can occur in case HC-L Setting value is bigger than Heater capacity itself (Setting value is 0.2C)

(7) Error Code Saving Function

Error Codes are saved in memory in order of sequence.

- ① Hold **MODE** and **SET** keys for 3 seconds at the same time. Then - IN - will be displayed on PV.
- ② Press **MODE** 6 times more to find - Er - on PV, and the stored Error Code on SV.
- ③ Error Code can be saved up to 20 cases.
- ④ The other content can be displayed in sequence, when pressing **▲** or **▼** key is repeated.

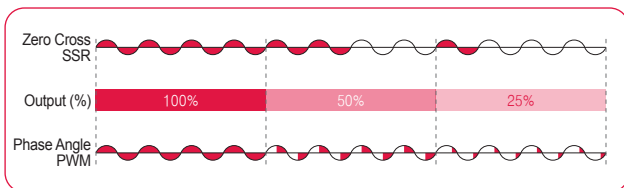
※ ERROR CODE TABLE

No	Error Sign	Description
1	tc.oP	Sensor Disconnection
2	tc.St	Sensor Short-Circuit
3	tc.rE	Sensor Polarity Reverse
4	Ht.oP	Heater Disconnection
5	Ht.St	Heater Short-Circuit
6	Gr.St / tr.St	Ground Fault or Triac Short-Circuit
7	FU-1	Fuse 1 Disconnection
8	FU-2	Fuse 2 Disconnection
9	AL-H	High Limit Alarm
10	AL-L	Low Limit Alarm
11	Fr.Er	Power Frequency Error
12	tr.St	Triac Short-Circuit

(8) Selecting Output Method

Zero Cross(SSR) or Phase Angle(PWM) are available depending on the user's choice considering environment.

- ① Hold **MODE** and **SET** keys for 3 seconds at the same time. Then - IN - will be displayed on PV.
- ② Press **MODE** key 7 times more to display HSCI on PV , and PWM/SSR(Output Method) on SV.
- ③ Output method can be selected by pressing **▲** , **▼** key.
- ④ **SEL / SAVE** key for setting finish.



(9) Temperature Variation Correction

Is a function to control Temperature difference between setting temp. and actual temp.

- ① Press **MODE** + **SET** key at the same time, and PV is converted to "IN" status.
- ② Press **MODE** key 8 times, and it is converted to tnPA status. It is possible to input the temp. difference value. Then, the difference value is gradually decreased.
- ③ **▲** , **▼** for changing setting value.
- ④ **SEL / SAVE** key for setting finish.

(10) Relay Tuning

It is used in case of bad controlling condition or when hard to set PID value

- ① Press **MODE** + **SET** key at the same time, and PV is converted to "IN" status..
- ② Press **MODE** key 12 times, and it is converted to rELY status with ON/OFF selections.
- ③ **▲** , **▼** key for changing value
- ④ **SEL / SAVE** key for setting finish

(11) PID Manual Control

It is possible to control PID constant manually, in case it is still hard to control well after Auto Tuning and Relay Tuning

- ① Press **MODE** + **SET** key at the same time, and PV is converted to "IN" status.
- ② Press **MODE** key 9,10,11 times, and it is converted to LP-P(I,d) status.
 - * Press Modu key 9 times for "P" value change.
 - * Press Modu key 10 times for "I" value change.
 - * Press Modu key 11 times for "D" value change.
- ③ **▲**, **▼** key for changing value
- ④ **SEL / SAVE** key for setting finish
- ⑤ PID Manual operates after pressing **SEL / SAVE** key only in case nAnC is ON status.

(12) Manual Controlling Operation (nAnC)

It is used to operate PID setting value (11)

- ① Press **MODE** + **SET** key at the same time, and PV is converted to "IN" status..
- ② Press **MODE** key 13 times, and it is converted to nAnC status with ON/OFF selections.
- ③ **▲**, **▼** key for changing value
- ④ **SEL / SAVE** key for setting finish

(13) Frequency Check

This is a function which displays error message (Fr.Er) in case of unstable input voltage frequency, controller actively displays the message after checking status of unstable voltage.

- ① Press **MODE** + **SET** key at the same time for 3 secs, and PV is converted to "IN" status.
- ② Press **MODE** key 14 times more to display Fr.Er on PV, and (ON/OFF) on SV.
- ③ Originally set by "Off", turn on Frequency Check function to check and display the status of factory's main voltage frequency. The function can be turned off in case of inconvenience by frequent error message.

(14) Noise Check

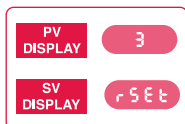
Although Triac is normal status, tr.St error can be displayed when noise occurs by unstable input voltage. In case of tr.St error, the status of Triac and connection of heaters must be checked. The function can be optionally turned off when same errors repeatedly occur in normal status.

- ① Press **MODE** + **SET** key at the same time for 3 secs, and PV is converted to "IN" status.
- ② Press **MODE** key 15 times more to display PU.Er on PV, and (ON/OFF) on SV.
- ③ Originally set by "ON", and it is insisted to check factory's main voltage when error displayed. The function can be turned off in case of inconvenience by frequent error message.

(15) Setting for Cartridge Heater only.

- ① Press **MODE** + **SET** key at the same time for 3 secs to make PV sign "IN" status.
- ② Press **MODE** key 16 times to change PV sign "HE.At", SV sign "Hr.Ht/CA.Ht"
- ③ USE **▲**, **▼** to select "CA.Ht" and Press **SEL / SAVE** to complete the setting.

9. Reset Function



This is a function which initializes the setting values of User mode and Supplier mode. Turn on the power switch pressing both Mode button and Set button to display rSEt on SV and to initialize all setting values after displaying countdown on PV (from 3 to 0).

After initializing is finished, main power of Unit automatically turned off and restored to on status after 3 secs, and all values will be restored as factory setting.

10. Integrated Control Function (optional)

Central Control for every modules in the frame box can be executed effectively, with only one switch handling, i.e. STANDBY or LOCK for every module could be controlled simultaneously.

1) STANDBY

In order to stop the production for a while on the way of normal operation, you can select this function to reduce the Power Supply, with only one handling.

2) LOCK

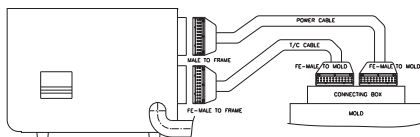
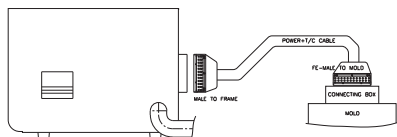
This is a security function to prevent from any modifications of setting. You can convert all modules into Lock ON/OFF Mode with only one handling.

11. Connector and Cable

Connector means a component attached to the end part of cable in order to make it easy to connect / disconnect the wire to the mold / controller. Various kinds of connectors are used depending on load capacities.

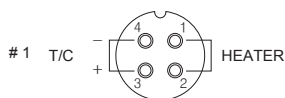
· Standard Spec. : Integrated Wire(Power+T/C)

· Optional Spec. : Separated Wire(Power, T/C)



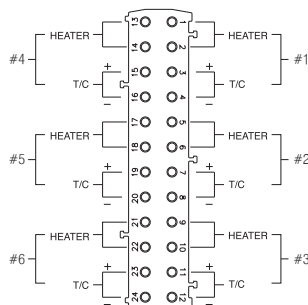
1) How to wire Heater and T/C in Connectors

4P Round Jack



※ NOTE : # NO = ZONE NUMBER

24P Male standard connector
(5 ZONE~24 ZONE)



(1) Standard Specification

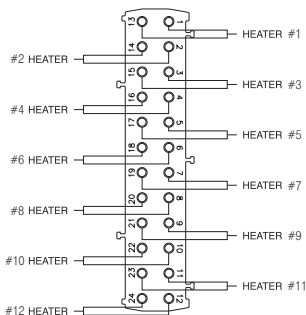
Female connector is attached to the mainframe, and YUDO supplies it with 4P(1 Zone), 24P as same to the following standard.

No	Zone	Connector.	Quantity	No	Zone	Connector	Quantity
1	1 Zone	4P Round Jack	1 EA	5	7~8 Zone	24P	2 EA
2	2 Zone	24P	1 EA	6	9~12 Zone	24P	2 EA
3	3~4 Zone	24P	1 EA	7	18 Zone	24P	3 EA
4	5~6 Zone	24P	1 EA	8	19~24 Zone	24P	4 EA

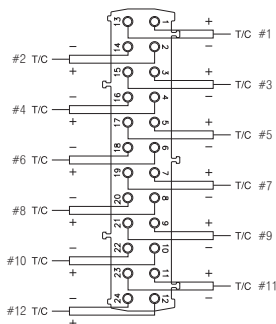
(2) Options

As for option in wiring, Separated power lines from that of T/C can be selected depending on customer's preference. But also the other connector out of YUDO standard could be equipped when those are supplied from customer. In case that, a cable is fabricated according to special order, Controller Connector must be fabricated in accordance with the Cable Specification.

24P FeMale heater connector

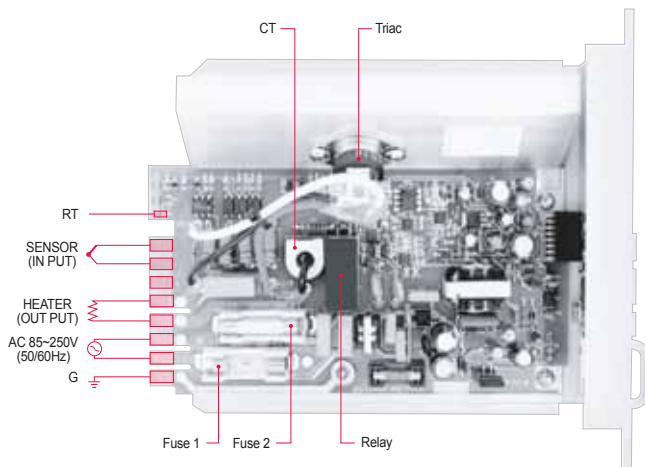


24P Male T/C connector



※ As for Zone No.:Please refer to the standard spec.

12. Diagram for Unit and Structure



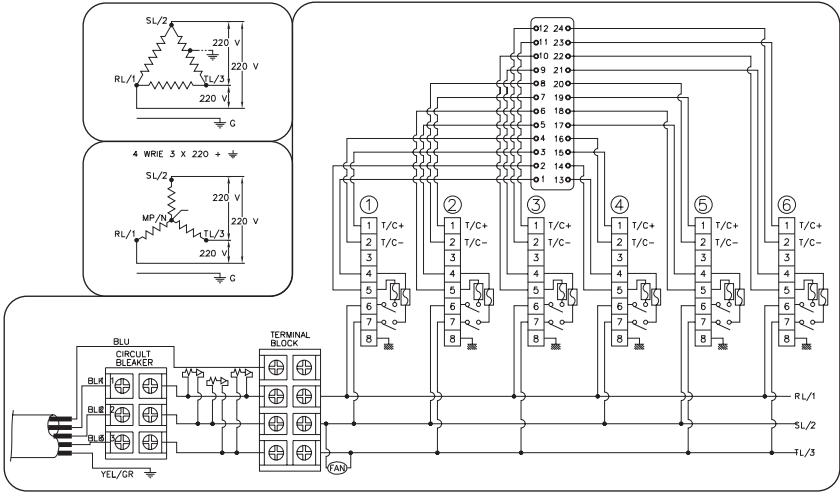
13. Error Code Display Function

No	Error Classification	Description
1	Malfunction on Temperature Sensor	<p>- Disconnection, Short, or Reversed Polarity of Sensor can be checked. When Disconnection or Short is detected, it is converted into Manual Operation Mode automatically, and Power Output will be continued to maintain at the Set Temperature. This function helps to prevent interruption in production due to malfunction of a sensor, and Output Power can be adjusted manually at will.</p> <p>- On error occurrence, Sensor Disconnection(tC.oP), Sensor Short(tC.St), and Sensor Reversed(tC.rE) could be displayed on PV. When the problems solved, power must be put again to recover Normal Operation.</p>
2	Malfunction on Heater	<p>- Disconnection, Short, or Reversed polarity of sensor can be checked. When disconnection or short is detected, it is converted into manual operation mode automatically, and power output will not be continued for the safety purpose.</p> <p>- On error occurrence, heater disconnection (HT-oP), Heater Short(Ht-St) could be displayed on SV. When the problem solve, power must be put again to recover normal operation.</p>
3	Fuse Disconnection	<p>- In case the fuse blown out, related fuse number is displayed on SV.</p> <p>- When the problem is solved, power must be put again to recover normal operation.</p>
4	Short Circuit in Triac	<p>- The error message of Tr.St and Ground fault(gr.ft) on the PV when you put the power initially to the controller. Check the Triac status and if it is ok then please check the heater status. Please change the heater if heater has short circuit trouble.</p> <p>- In case of short circuit of Triac while operating condition. it is converted into manual operation mode automatically, and power output will not be continued for the safety purpose. On error occurrence, Tr.St could be displayed on PV. When the problem solve(replacement of Triac), power must be put again to recover normal operation.</p>

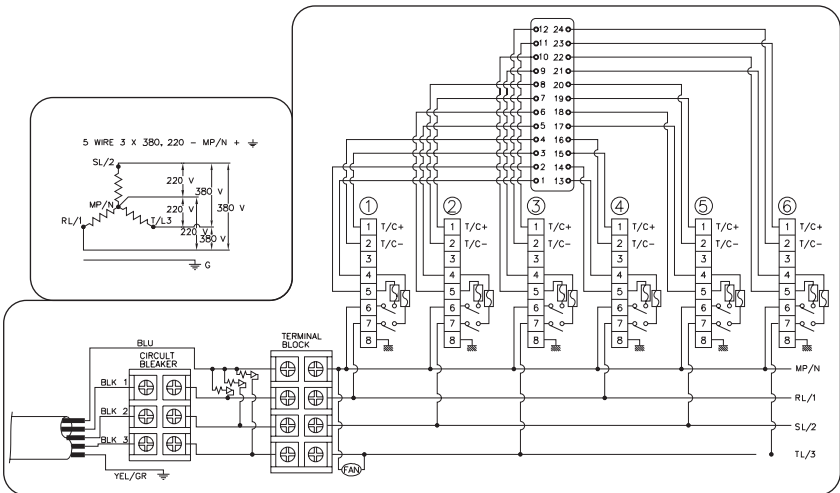


14. Electric Wiring Diagram

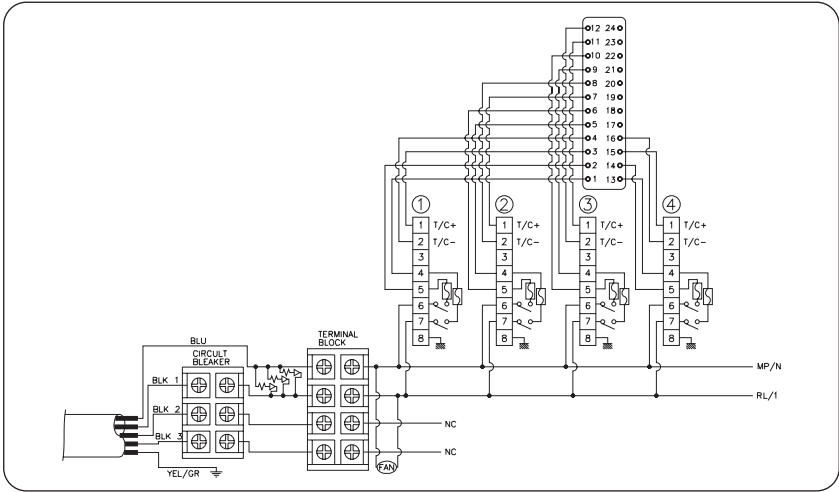
1) 220V (3Phase 3 Line Type) * Max 240V



2) 380V (3Phase 4 Line Type) * Max 414V



3) 240V (1 Phase 2 Line Type)



15. Wiring Modification Method

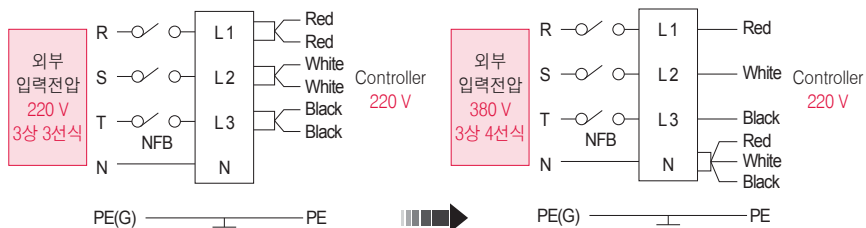
YUDO Temperature Controller operates with supply voltage 220~240V AC. But even in case of supply voltage 380~414V AC 3phase 4 line, by re-wiring as shown below, 220~240V AC can be taken between one phase(R, S or T) and Neutral(N). YUDO Temperature Controller be supplied with wiring for supply voltage 220~240V AC unless special instruction. Please check the current wiring.

Caution

Before re-wiring, make sure AC main power OFF and Power Switch OFF on controller.

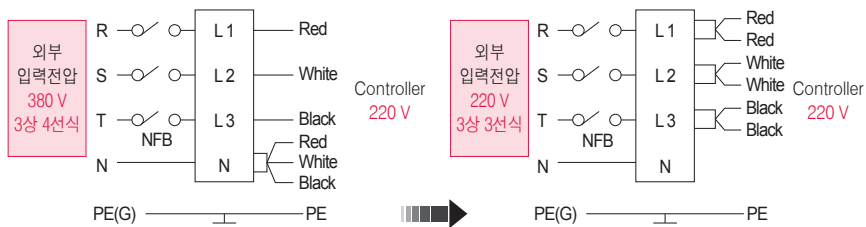


1) Wire modification Method from 3 Phase 3 Line AC220V to 3 Phase 4 Line AC380V



1. Power off
2. Open the back cover of controller
3. Separate all 3 blue-sleeved wires from L1, L2 and L3
4. Plug all 3 blue-sleeved wires into N

2) Wire modification Method from 3 Phase 4 Line AC380V to 3 Phase 3 Line AC220V



1. Power off
2. Open the back cover of controller
3. Separate all 3 blue-sleeved wires from N
4. Plug blue-sleeved RED wire into L1
WHITE wire into L2
BLACK wire into L3

Warning

PE(G) must be ground connection, do not permit to connect the Neutral.
Manufacturer cannot be held responsible for any troubles from Above.

16. Default Value



1) Default Value of User's Menu

No	Menu	Value	
1	SV(Setting temperature)	200°C	
2	AL-H(High Limit Alarm)	50°C	
3	AL-L(Low Limit Alarm)	-50°C	
4	STANDBY	t (STANDBY time)	1.00 (1hour)
		g (STANDBY temperature rate)	50 (Setting Temp. - 50°C)
5	Lock	OFF	
6	-Id-	CH00	

2) Default Value of Supplier Menu

No	Menu	Value
1	-In-(Sensor Type)	IC(J) or CA(K)
2	C-F(Celsius/Fahrenheit)	CdSP(°C) / FdSP(°F)
3	Unit(Temperature Unit)	--1.0
4	SoFt(Soft start Function)	On
5	HC-H(High Limit Current)	C 20.0
6	HC-M(Minimum Current)	C 00.2
7	-Er-(Error History)	0.1-0
8	HSCI(Output Method)	Zero Cross(SSR) / Phase Angle(PWM)

17. Safety Marks

	DANGEROUS VOLTAGE INSIDE
	DISCONNECT AC POWER BEFORE SERVICING

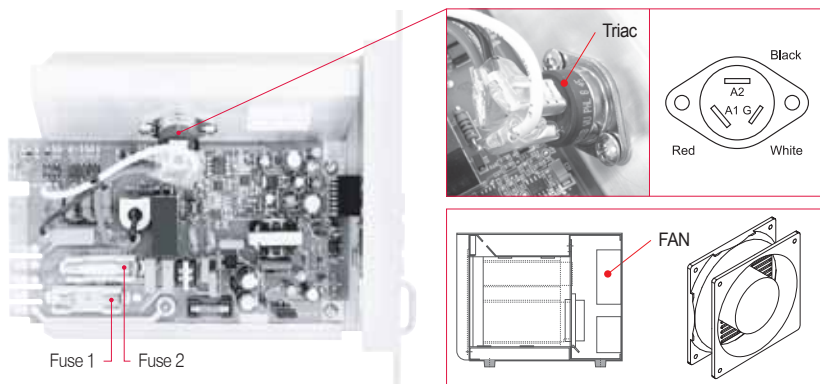


18. Check-Points for Trouble Shooting

No	Phenomenon	Probable Cause	Check point
1	tC.oP on SV	1. Sensor(T/C) was disconnected 2. Connector wiring disconnected	1. Check contact state of Connectors 2. Rewire or replace T/C after testing by electric tester
2	tC.St on SV	1.Sensor(T/C) wire is short on output side	1. Check if T/C wire is loosely contacted at connector or pressed by mold
3	tC.rE on SV	1. +/- polarity of sensor(T/C) is changed	1. Check connection and change polarity of T/C at connector attached to mold
4	Ht.oP on SV	1. Heater was disconnected	1. Check resistance of heater with tester, If it is blown out replace heater
5	Ht.St on SV	1. Short circuit in heater or short in heater wire 2. Capacity of heater is too high (3600W [15A] or more)	1. Check short circuit of heater or short in heater line with tester 2. Make wiring so that capacity of heater may lower then 15A.
6	tr.St on SV	1. Triac attached to heat radiator board is damaged	1. Check pin in Triac A1 and A2 pins may be in short circuit
7	In case the Triac is ok above no.6	1. Power supply is not stable (Noise, Frequency)	1. Check factory power supply 2. Switch off Frequency and Noise inspection function (Refer to Page 15~16)
8	FU-1 on SV	1. F-1 fuse is disconnected by momentary over-current	1. Replace F-1 fuse.(250V 25A)
9	FU-2 on SV	1. F-2 fuse is disconnected by momentary over-current	1. Replace F-2 fuse.(250V 25A)
10	Temperature rises continuously	1. Triac attached to heat radiation board of controller is damaged.	1. Check pin in Triac. A1 and A2 Pins may be in short circuit
11	Severe temperature (Deviation between set Temp. & Sensing Temp.)	1. FS1 or FS2 fuse blown out 2. Heater blown out 3. Heater wire disconnection 4. Sensor(T/C)disconnection 5. Cooling water leak	1. Change fuse 2. Check resistance of heater with tester 3. Check connection of heater 4. Check sensor disconnection 5. Check mold cooling water leak

No	Phenomenon	Probable Cause	Check point												
12	Severe temperature (Deviation between set Temp. & Sensing Temp)	1. sensor contact is unstable 2. sensor type is different each other	1. Check contact state of sensor 2. Check sensor type												
13	Controller temperature rises, but heater in actual mold is over heated	1. T/C wire is pressed by mold or it's coating is peeled, so as to contact mold or line 2. Cooling water leak makes Heaters to have over-current	1. Check and replace T/C wire 2. Check mold cooling water leak												
14	Setting temperature of controller equals with present temperature, but the heater in actual mold is overheated or cold	1. T/C (Sensor)type between mold and controller is different EX <table border="1" style="margin-left: 20px;"> <tr> <td>Controller</td> <td>CA</td> <td>IC</td> </tr> <tr> <td>Hot Runner</td> <td>CA</td> <td>Overheat</td> </tr> <tr> <td>CA</td> <td>OK</td> <td>OK</td> </tr> <tr> <td>IC</td> <td>Temp. lack</td> <td>OK</td> </tr> </table>	Controller	CA	IC	Hot Runner	CA	Overheat	CA	OK	OK	IC	Temp. lack	OK	1. Make T/C(sensor)type of mold equal with that of controller
Controller	CA	IC													
Hot Runner	CA	Overheat													
CA	OK	OK													
IC	Temp. lack	OK													

Spare Parts



EMC Standard

EMC Should be installed on YUDO Case(Fraim) to meet EMC Spec.



Global Network



ASIA & OCEANIA

CHINA

YUDO TRADING CO., LTD.
Tel.: + 86 769 8539 4446
e-mail: info@yudo.com.cn
YUDO (HONG KONG) ENTERPRISE CO. LTD.
Tel.: + 852 2344 5180
e-mail: info@yudohotrunner.com.hk
YUDO TIANJIN OFFICE
Tel.: + 86 022 5839 9351
e-mail: tianjin@yudo.com.cn
YUDO (SUZHOU) H.R.S. CO. LTD
Tel.: + 86 512 6504 8882
e-mail: shanghai@yudosuzhou.com
YUDO (SHANGHAI) OFFICE
Tel.: + 86 021 5138 6422
e-mail: pur2@yudosuzhou.com
YUDO (NINGBO) OFFICE
Tel.: + 86 574 8711 3033
e-mail: ningbo@yudosuzhou.com
YUDO (QINGDAO) TRADING CO. LTD.
Tel.: + 86 532 8765 1698
e-mail: qingdao@yudoqingdao.com
YUDO (QINGDAO) TRADING CO., LTD (WEIHAI) OFFICE
Tel.: + 86 631 5672 282
e-mail: wh@yudoqingdao.com
YUDO (QINGDAO) TRADING CO., LTD (DALIAN) OFFICE
Tel.: + 86 131 3002 3765
e-mail: dl@yudoqingdao.com
KUNSHAN YUDO-SUNS CO. LTD.
Tel.: + 86 512 5791 0286

TAIWAN

YUDO CO., LTD. (TAIWAN BRANCH)
Tel.: + 886 2 2205 6677
e-mail: yudotw@yudotw.com.tw

JAPAN

YUDO JAPAN CO., LTD.
Tel.: + 81 3 6400 4071
e-mail: yuja@yudojpn.co.jp
-Osaka Office
Tel.: + 81 6 6338 9571
e-mail: yorozu@yudojpn.co.jp
-Nagoya Office
Tel.: + 81 52 745 0361
e-mail: yuja@yudojpn.co.jp

INDIA

YUDO HOT RUNNER INDIA PVT. LTD.
Tel.: + 91 250 245 1155 / 56
e-mail: yudo@yudoindia.com
-Delhi Branch Office
Telefax: +91 120 4549076
e-mail: chirag@yudo.co.in
-Pune Branch Office
Tel.: +91 20 30013070
e-mail: saurabhi@yudo.co.in
-Bangalore Branch Office
Telefax: +91 80 40600700
e-mail: nitin@yudo.co.in
-Chennai Branch Office
Tel.: +91 44 39159145
e-mail: rajesh@yudo.co.in

BANGLADESH

YUDO (BD) PVT. LTD.
Tel.: + 88 02 9014 632
e-mail: patas@yudohot.com

PHILIPPINES

WANCO INDUSTRIAL INC.
Tel.: + 63 949 307 1950
e-mail: colinlee@wanco.com.sg

SINGAPORE

YUDO WANCO PTE. LTD.
Tel.: + 65 6264 1166
e-mail: sales@wanco.com.sg

VIETNAM

HOA VAN HOA. CO., LTD.
Tel.: + 84 43 78 77 179
e-mail: yuko.joseph@yudohot.com
-Hochiminh Office
Tel.: + 84 908 81 36 55
e-mail: peterchin@wanco.com.sg

THAILAND

YUDO WANCO (THAILAND) CO., LTD.
Tel.: + 66 2 174 723-40
e-mail: sales@thaiwanco.com

MALAYSIA

MAWANCO SMD BHD.
Tel.: + 60 3 8945 2127
e-mail: cocheong@mwawanco.com.my

INDONESIA

WANCO INDUSTRIAL PTE. LTD
Tel.: + 62 92299 2850
e-mail: johnson@wanco.com.sg

AUSTRALIA

STM AUSTRALIA PTY. LTD.
Tel.: + 61 3 9885 9795
e-mail: sales@stm.net.au

NEW ZEALAND

STM SALES LTD.
Tel.: + 64 9 8206454
e-mail: sales@stm.net.au

SYRIA

SAWAS TRADING GROUP
Tel.: + 963 21 2254756
e-mail: swsco@scs-net.org

ISRAEL

ASI-AFASPEM ISRAEL LTD.
Tel.: + 972 4 6802770
e-mail: hrmold@netvision.net.il

IRAN

YUDO.ir
Tel.: + 98 [021 22066506-7
e-mail: sales@yudo.ir



- ★ Headquarter
- ◻ Plant
- Subsidiary
- ▲ Sales Office
- Agency

AMERICA & EUROPE & AFRICA

U.S.A.

YUDO INC. (Head Office)
 Tel : + 1 614 873 1300
 e-mail : yudo@yudousa.com
 -Western Territory (Sales Office)
 Tel : + 1 805 480 4922
 e-mail : jcescantante@yudousa.com
 -Central Territory (Sales Office)
 Tel : + 1 630 529 7487
 e-mail : ksalemi@yudousa.com
 -Mid-Western Territory (Sales Office)
 Tel : + 1 440 834 0167
 e-mail : akitzmiller@yudousa.com
 -Southern Region & Peta Business (Sales Office)
 Tel : + 1 214 774 4556
 e-mail : wwiteside@yudousa.com

BRAZIL

PAULO ENGENHARIA LTDA.
 Tel : + 55 11 3392 5775
 e-mail : adias@yupa.com.br

U.K.

YUDO (UK) LTD.
 Tel : + 44 1989 763423
 e-mail : enquiries@yudo.co.uk

PORTUGAL

YUDO HOT RUNNER SYSTEMS LDA.
 Tel : + 351 244 575 810
 e-mail : yudopt@yudoeu.com
 YUDO EU LDA.
 Tel : + 351 244 570 390
 e-mail : yudoeu@yudoeu.com

FRANCE

HVDI YUDO FRANCE
 Tel : + 33 2 3277 4200
 e-mail : yudofr@yudoeu.com

SPAIN

YUDO IBERICA S.L.
 Tel : + 34 93 715 81 22
 e-mail : yudo@yudoiberoca.es

ROMANIA

ROMOULD YUDO ROMANIA
 Tel : + 40 213 272 115
 e-mail : yudoro.nicu@yudoeu.com

TURKEY

YUDO TURKEY
 Tel : + 90 212 320 95 63
 e-mail : info@yudo.com.tr

ITALY

YUDO MR-TECH S.R.L.
 Tel : + 39 02 99 551 78
 e-mail : yudoit.giovanni@yudoeu.com

GERMANY

YUDO GERMANY GmbH.
 Tel : + 49 2359 50 92 04
 e-mail : info@yudo-germany.com
 MKT MOLLENBERG GmbH.
 Tel : + 49 6162 40 77
 e-mail : mollenberg@mk-t.info

NETHERLANDS

INVENT B.V.
 Tel : + 31 (0)13 5705252
 e-mail : ajacobs@mouldservice.nl

SLOVAKIA

YUDO SLOVAKIA s.r.o.
 Tel : + 421 335 333 363
 e-mail : yklee@yudostar.com

AUSTRIA

PROTEC
 Tel : + 43 1 259 5917
 e-mail : office@protec.co.at

POLAND

EUROTECH HOLDING Sp. z o.o.
 Tel : + 48 22 843 05 79
 e-mail : newkdk@hanmail.net

FINLAND

YUDO Nordic Oy
 Tel : + 358 3 616 1847
 e-mail : info@yudonordic.fi

EGYPT

C&C CORPORATION
 Tel : + 20 2 2516 7926
 e-mail : jinylee52@gmail.com

PERU (CHILE, COLOMBIA)

NOBLE EQUIPMENT & SERVICES CORP.
 Tel : + 51 1 615 1400
 e-mail : nobless@noblessecorp.com

CZECH

ABUKO s.r.o.
 Tel : + 420 724 358 612
 e-mail : info@yudo.cz

REPUBLIC OF SOUTH AFRICA

HESTICO PTY. LTD.
 Tel : + 27 11 786 5228
 e-mail : victor.s@hestico.co.za

YUDO

YUDO CO., LTD.

HEAD OFFICE & FACTORY

169-4, Gujang-Ri, Paltan-Myun, Hwasung-City, Gyeonggi-Do, 445-915 Korea

Tel : +82 31 350 2530 (Overseas Sales Team)

Fax : +82 31 354 7446

E-Mail : yudo@yudohot.com Website : www.yudo.com

BUSAN OFFICE Tel : +82 51 304 1711 Fax : +82 51 304 1713

DAEGU OFFICE Tel : +82 53 383 4712~3 Fax : +82 51 383 4714

GWANGJU OFFICE Tel : +82 62 953 4711 Fax : +82 62 954 0846

GUMI OFFICE Tel : +82 54 475 5732~3 Fax : +82 54 475 5734

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