

Temperature & Humidity Programmable controller

TEMI2000 SERIES

Dual/Single loops Programmable controller

TEMP2000 SERIES



SD Memory Card



Digital Recorder Function



640 x 480 High Resolution Screen



Heating · Cooling Control Support



Separated Type Hardware



Customized UI



GENERAL OUTLINE OF TEMI2000/TEMP2000 SERIES

FEATURES & FUNCTIONS



Touch Screen Interface

Easy access to setup and operate with Touch Screen



Variable PID groups

Precision control with each optimized PID group for specified range



High Accuracy

Precision control with 18bit A/D Converter,
Temp. : $\pm 0.1^{\circ}\text{C} + 1$ digit of F,S
Humi. : $\pm 1\% + 1$ digit of F,S



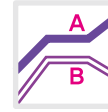
Input Sensor Bias

Offset value depending on characteristics of system helps smooth PV line applying assigned offset by each flexibly predefined ranged



Extended Pattern Time

999h, 59min, 59sec. can be programmed in every single segment



Infinity Program Operation

1200 SEGs with TEMI: 120PTNs / TEMP: 80PTNs.
Max. 999 times PTN/SEG repeat operation and link operation makes infinity program operation

SYSTEM APPLICATIONS

Temperature & Humidity Programmable Controller TEMI2000 series



Specialized controller

As a specialized controller for temperature humidity test chamber, synchronized control system with all sensor combination PT-PT, PT-DCV, DCV-DCV and DCV-PT



Optimizing PID group

Precision control by 6 group of temp/humi and 3 group of temperature only



Humidity Display Mode

Selectable relative humidity display mode between Auto/Manual when setting "0" to Humidity SP



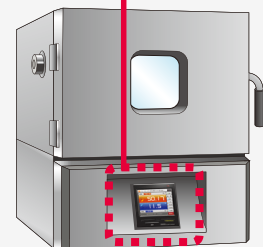
Specialized Humidity Control

Flexible Humidity control mode on extreme condition such as high and low temp./Humi.

Available various installation of Display Part on outside of system with VESA mount



Application of panel mount on the front door to save external dimension and offer user convenient





16 Digital Inputs

16 digital input points with max 12V contact can be allocated to assigned action of RUN/STOP/HOLD/STEP and DI ERROR input



32 Digital Outputs

32 digital outputs (STD 12 + OPT 20) points can be assigned to about 80 types of various signal like LOGICAL, DI, MANUAL USER, IS, TS, ALM, RUN and so on



Digital Recorder Function

Real-time monitoring displays as trend graph and easy data acquisitions of PV, SP and MV. No additional Recorder required



SD memory card

Easy data management with Viewer software, parameter setting value and customized image Up/Down load with SD card



Free PC Software

Free PC multi-monitoring software for Communication and SD Viewer for data management of SD data



Powerful Communication

Flexible communication interface between RS485 / RS232C by socket-pinhead directly and 115,200 bps communication speed. ETHERNET support



Single / Dual Programmable Controller TEMP2000 series



Double Password

Preventing from unauthorized access for system and program, and classifying authorization degree of end-user



User TAG

Naming each zone with 6 digits character with TAG feature in order to classify and display



Asynchronous/Synchronous Mode

Two independent loop controls that can be performed with different programs, and also be done simultaneously in one program



Displays START/END Time

Displays operating time as well as START and Estimated Operation End time for End-User convenient



Sync Communication

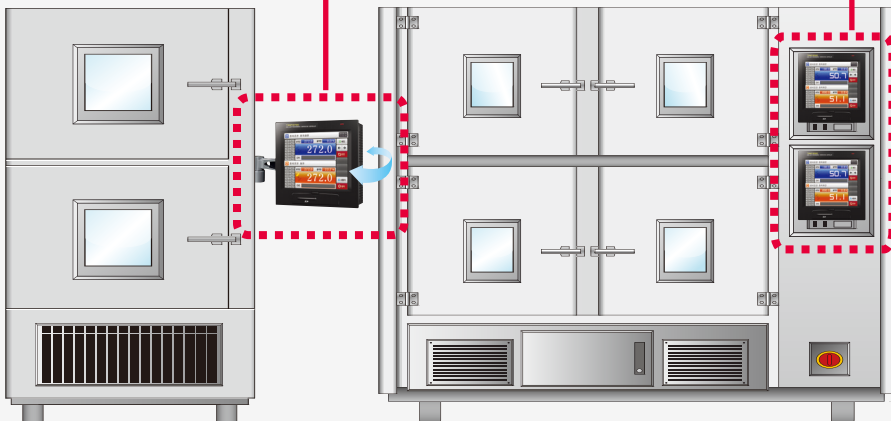
Available for communicating with upper system like PC, PLC simultaneously, while activating Sync-communication with lower system by synchronizing slave controllers with SP of TEMP2000



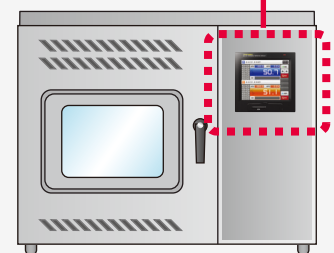
Various UNIT displays

Available 12 kinds of various UNIT to display Under DCV sensor (°C, %, °F, blank, Pa, %RH, V, kPa, mV, mmHg, kg, f)

2 / 4 zone chamber application with TEMP2000 dual loops control. Each zone can be controller individually by Asynchronous/Synchronous Mode



1 zone control and additional 1 zone monitoring without recorder



WHAT'S UNIQUE IN TEMI2000/TEMP2000 SERIES

DIGITAL RECORDER FUNCTION



Real-Time Monitoring

Monitors PV, SP and MV for each channel.
Displays as trend graph in real time.
Records data to built-in internal memory



SD Card adapter

All data in internal memory including trend data and setup parameter value can be forwarded and saved in SD card. Each saved data as a file offers easy way to manage operation record and system parameters



Displays data by trend graph

Saved trend data in internal memory as file unit can be opened and displayed as trend graph



SD Viewer

Saved monitoring trend data in SD card can be opened and displayed with free SD viewer software and converted to spread sheet of MS Excel file



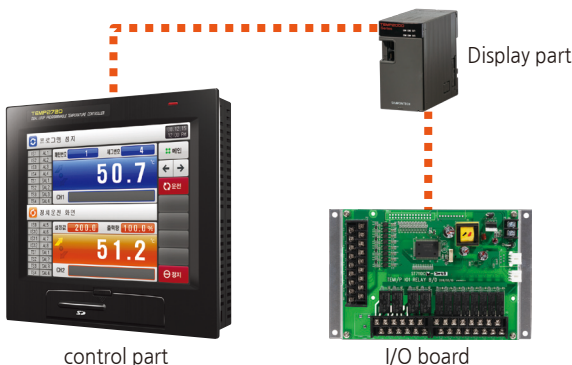
Easy parameter Up/Down load

Parameter setup value can be forwarded to other same type controller easily through SD card



SEPARATED HARDWARE

Separated structure of the product as 2 part
- Display part, control part and I/O board - offers more various applications for system conriquration



VESA MOUNT

Panel mount as well as VESA mount is useful to diversify and set more unique system installation



SCREEN CUSTOMIZING



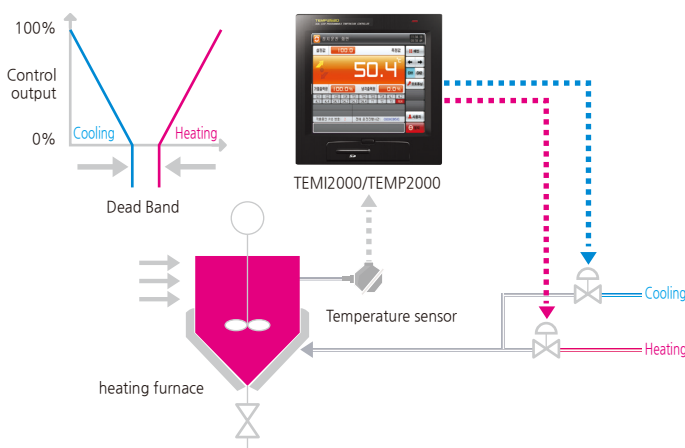

DISPLAYS CUSTOMIZED SCREEN BY UPLOADING USER MADE IMAGE

- ON INITIAL LOGO SCREEN** User made and customized screen will appear when power on the controller
- ERR DI ERROR SCREEN** User can upload self-designed BMP image showing their error part and message That Customized error screen appears when occurring DI error
- ... USER SCREEN** 16 BMP images for showing product and company information made by user can be set into controller. Those images will appear by rotating with no key input after passing assigned time like screen saver

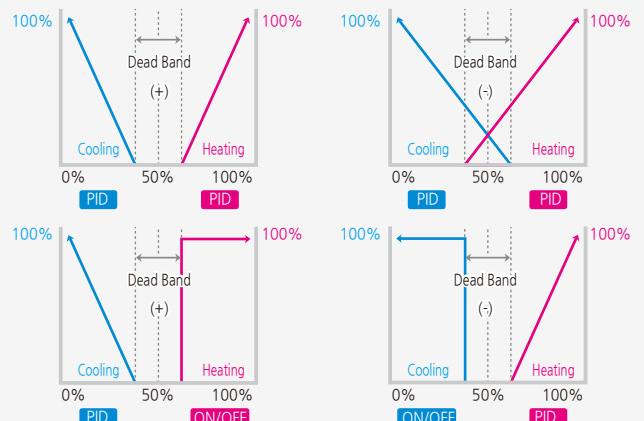
SPECIALIZED DISPLAY AND SCREEN CONFIGURATION

- PV Various PV Fonts**
Offers three kinds PV fonts of HEAD / NORM / ART
- Group Easy Menu**
Simplified menu configuration makes setting parameters easy no matter how many parameters user wants
- 3.7" 5.7" 7.5" Various LCD size**
Select 3.7", 5.7" and 7.5"
- 640 x 480 High Resolution Screen**
640 x 480, 256K pixels TFT-LCD shows distinguished clear screen seems real picture
- Multi-Language system**
Support KOR / ENG / JPN / CHN / RUS language
- Easy Keypad**
Easy setup parameter - variable Input Keypad, Alphab/Numeric (°C, °F, Blank, %, Pa, WPa, %RH, mV, V, Ω, mmHg, kgf)

HEATING/COOLING PROGRAM CONTROL



► Heat and Cooling Control by Equipments



TEMPERATURE & HUMIDITY PROGRAMMABLE CONTROLLER **TEMI2000 SERIES**

PRODUCT SPECIFICATION

Group	Item	TEMI2500	TEMI2700	TIO2000	
Screen	Display	5.7" TFT-LCD	7.5" TFT-LCD	-	
	Resolution	640(W) x 480(H)		-	
	Language	Korean, English, Chinese (Simplified, Traditional), Japanese, Russian		-	
	Font	3 kinds of PV font(Head/Norm/Art)		-	
	User screen	16 customized user interface for screen by user		-	
	Mount type	PANEL mount, VESA mount(MIS-D 75)		-	
Analog input	Number of point	2points(TEMP. : 1point, HUMI. : 1point)		-	
	Type	TEMP.	PT1 100Ω	-90.00 ~ 200.00°C	-
			PT2 100Ω	-100.0 ~ 300.0°C	-
		HUMI.	DCV	-1.000 ~ 2.000V(-100.0 ~ 200.0°C)	-
			DCV	-10.0 ~ 110.0°C(0.0 ~ 100.0%)	-
	Sampling time	Each temperature and humidity 250ms		-	
		Input accuracy	TEMP.	±0.1% of full scale ±1 digit	-
	HUMI.		±1.0% of full scale ±1 digit	-	
	Bias	Each 4points piece bias for temperature and humidity		-	
	Analog output	Output specification (Max. 4points)	Voltage output(SSR) 4points	ON voltage : 24V DC(Load resistor : Min. 600Ω/Pulse width : Min. 5ms)	-
Current output(SCR) 4points			4~20mA DC(Load resistance : Max. 600Ω)	-	
Output type		Control output/Transmission output(PV, SP)		-	
Output accuracy	±0.3%(D/A 14bits)		-		
Digital input	Contact point specification	Basic 16points(Contact point capacity : Max. 12V DC, 10mA) Selection of operation for A or B point		42point Max. , 14point/UNIT (3sets connectable) Contact capacity : 12V DC, 10mA Max.	
	Contact point function	Run/Stop/Hold/Step, selectable run patterns, set DI detect delay time, select DI error monitor(text or picture)		-	
Digital output	Contact point quantity	12points base(Additional 20points by option)		-	
		4points base C-contact relay	Normal open(Max. 30V DC/1A, 250V AC/1A)	-	
			Normal close(Max. 30V DC/1A, 250V AC/1A)	-	
		8points base A-contact relay	Normal open(Max. 30V DC/1A, 250V AC/1A)		-
	Additional 20points A-contact relay(Option)		-		
	Signal type	Inner signal(10points) On/Off signal(TEMP. 10points, HUMI. 5points) Logical signal(3points) Error signal(1point) User signal(1point)		-	
Time signal(4points) Fix Programmable end signal(2points) DI signal(16points) Sensor open signal(2points) Ref signal(2points)		-			
Alarm signal(8points) Up-Soak-Down signal(6points) Manual signal(12points) Fix timer signal(2points)		-			
RUN signal(2points) Wait signal(2points) Drain signal(1point)		-			
Program	Pattern/Segment	120 Patterns/1200 Segments		-	
	Segment time	Max. 999hours 59minutes 59seconds		-	
	Function	Up/Down slope rate, Wait, Operating start code, Pattern name, Power stop mode, PT end mode		-	
	Repetition	Pattern/Segment repeat operation		-	
PID control	PID groups	9 PID groups(6 PID groups for TEMP.· HUMI. + 3 PID groups for TEMP. only)		-	
	PID type	Zone PID		-	
Data back-up	Auxiliary functions	Changeable tuning point, PID tuning gain, Selectable HUMI. control code		-	
	Storage media	SD/SDHC card(FAT32 Format)		-	
Communication	Logging function	Program pattern/Parameter can be backup and restored, PV/SP can be stored.		-	
	Interface	Basic : Flexible to change between RS485/RS232C by switch, Max. 31 nodes. Max. 115,200 bps, Option : Ethernet(TCP/IP) *In case of selection of ethernet, RS232C/485 is not available		-	
Power	Protocol	PC-Link, PC-Link(Checksum), Modbus(ASCII, RTU)		-	
	Rated voltage	24VDC 22VA Max.		24V DC 1.3VA Max.	
	Lithium battery	For setup data retention(CR2032)		-	

MODEL CODE

TEMI2 * 00 - * * / * / *

① ② ③ ④ ⑤

① Display part LCD size

5 : 5.7 Inch (IP65 Certification)
7 : 7.5 Inch

② Control method

0 : General control
1 : Heating-Cooling control

③ I/O Board

0 : I/O1
1 : I/O2 (additional 20 relays)

④ SD card

SD : SD card

⑤ Ethernet communication

- : None
CE : Ethernet(TCP/IP)

DUAL/SINGLE LOOP PROGRAMMABLE CONTROLLER TEMP2000 SERIES

PRODUCT SPECIFICATION

Group	Item	Single loop		Dual loop		TIO2000
		TEMP2500	TEMP2700	TEMP2520	TEMP2720	
Screen	Display	5.7" TFT - LCD	7.5" TFT - LCD	5.7" TFT - LCD	7.5" TFT - LCD	-
	Resolution	640(W) x 480(H)				-
	Language	Korean, English, Chinese (Simplified, Traditional), Japanese, Russian				-
	Logo screen	Available to customize initial logo screen by user				-
	User screen	16 customized user interface for screen saver				-
	Mount type	PANEL mount, VESA mount(MIS-D 75)				-
Analog input	Number of point	1point(Universal input)		2points(Universal input)		-
	Type	TC	K, J, E, T, R, B, S, L, N, U, W, Platinel II, C			-
		RTD	Pt100(IEC), Jpt100(JIS), 1/100 Displayable			-
		DCV	0.4~2V, 1~5V, 0~10V, -10~20mV, 1~100mV (4~20mA, 0~20mA : Load resistor 250Ω, 500Ω Attach) Scale : -1999 ~ 30000			-
	Sampling time	250ms		250ms/Channel		-
	Input accuracy	±0.1% of full scale ±1 digit				-
	Bias	8points of piece and full bias				-
Display unit	TC/RTD	°C, °F				-
	DCV	°C, °F, Blank, %, Pa, kPa, %RH, mV, V, Ω, mmHg, kgf				-
Analog output	Output specification (Max. 4points)	Voltage output(SSR) 4points		ON voltage : 24V DC(Load resistor : Min. 600Ω/Pulse width : Min. 5ms)		-
	Output type	Current output(SCR) 4points		4~20mA DC(Load resistance : Max. 600Ω)		-
	Output accuracy	Control output/Transmission output(PV, SP)/Auxiliary output				-
Digital input	Contact point specification	Basic 16points(Contact point capacity : Max. 12V DC, 10mA) Selection of operation for A or B point				Max. 42point, 14point/UNIT (3sets connectable) Contact capacity : Max. 12V DC, 10mA
	Contact point function	Run/Stop/Hold/Step, selectable run patterns, set DI detect delay time, select DI error monitor(text or picture)				-
Digital output	Contact point quantity	12points base(Additional 20points by option)		Normal open(Max. 30V DC/1A, 250V AC/1A)		-
		4points base C-contact relay		Normal close(Max. 30V DC/1A, 250V AC/1A)		-
		8points base A-contact relay		Normal open(Max. 30V DC/1A, 250V AC/1A)		-
	Signal type	Additional 20points A-contact relay(I/O2 Option)				-
		Inner signal(8points/CH)	On/Off signal(7points/CH)	Logical signal(3points)	Error signal(1point/CH)	-
		User signal(1point)	Time signal(8points/CH)	Fix- Programmable end signal(2points/CH)		-
		DI signal(16points)	Wait signal(1point/CH)	Ref signal(2points/CH)	Alarm signal(4points/CH)	-
Seg alarm signal(4points/CH)	Manual signal(12points)	Sensor open signal(1point/CH)	Run signal(1point/CH)	-		
Up- Soak- Down signal(3points/CH)	Fix timer signal(1point/CH)			-		
Program	Pattern/Segment	80 Patterns/1200 Segments		80 Patterns(40/CH1, 40/CH2)/1200 Segments		-
	Segment time	Max. 999hours 59minutes 59seconds				-
	Function	Up/Down slope rate, Wait, Operating start code, Pattern name, Power stop mode, PT end mode				-
	Repetition	Pattern/Segment repeat operation				-
PID control	PID groups	6 PID groups(5 Zone PID groups + 1Deviation PID group or 6 Seg PID groups of each channel)				-
	PID type	Zone PID, Deviation PID, Seg PID				-
	Auxiliary functions	Changeable tuning point, PID tuning gain, Selectable disease control code				-
Data back-up	Storage media	SD/SDHC card(FAT32 Format)				-
	Logging function	Program pattern/Parameter can be backup and restored, PV/SP can be stored.				-
Communication	Interface	Basic : Flexible to change between RS485/RS232C by switch, Max. 31 nodes. Max. 115,200 bps, Option : Ethernet(TCP/IP) *In case of selection of ethernet, RS232C/485 is not available				-
	Protocol	PC-Link, PC-Link(Checksum), Modbus(ASCII, RTU), Sync-Master(CH1, CH2 Select)				-
Power	Rated voltage	24VDC 22VA Max.				24V DC 1.3VA Max.
	Lithium battery	For setup data retention(CR2032)				-

MODEL CODE

TEMP2 * * 0 - * * / * / * / *

① ② ③ ④ ⑤ ⑥ ⑦

① Display part LCD size

5 : 5.7 Inch (IP65 Certification)
7 : 7.5 Inch

③ Control method

0 : General control
1 : Heating-Cooling control

⑤ SD card

SD : SD card

⑦ SYNC operation

- : None
SC : SYNC operation

② Control channel

0 : Single loop (1CH Control)
2 : Dual loop (2CH Control)

④ I/O Board

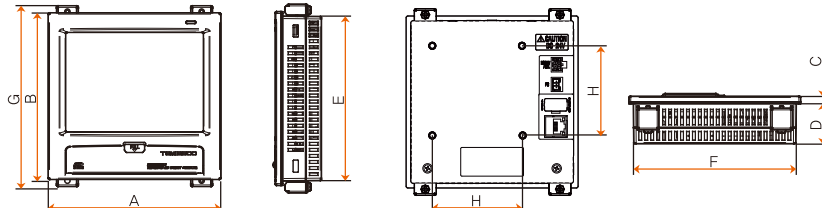
0 : I/O1
1 : I/O2 (additional 20 relays)

⑥ Ethernet communication

- : None
CE : Ethernet(TCP/IP)

EXTERNAL DIMENSION AND PANEL CUTTING SIZE

Display part

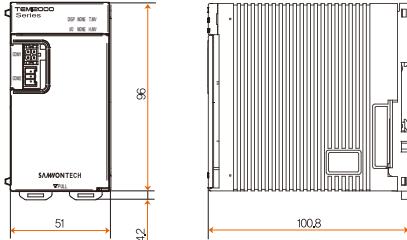


unit : mm

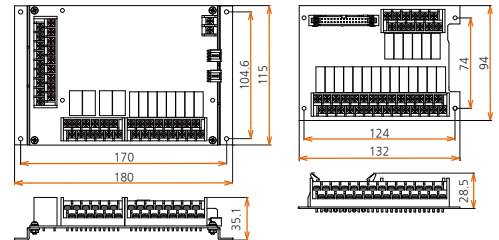
Model	A	B	C	D	E	F	G	H
2500	144	144	6.2	33.5	136.5	136.5	156	75
2700	203	180	6.8	38.2	172.5	195.5	192	75

※ Panel Cutting size : E, F (Tolerance : 0 / +1.0)

Control part

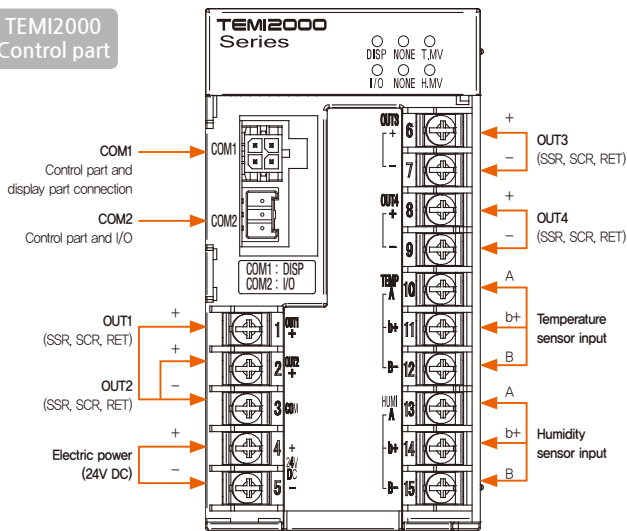


I/O board

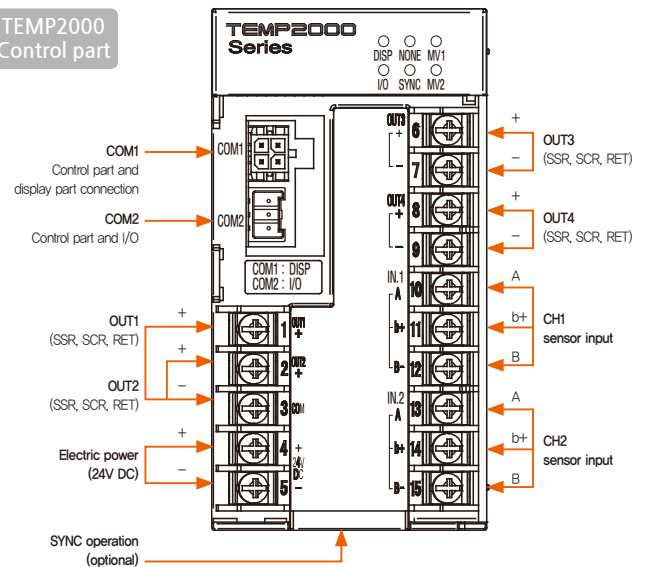


TERMINAL ASSIGNMENT

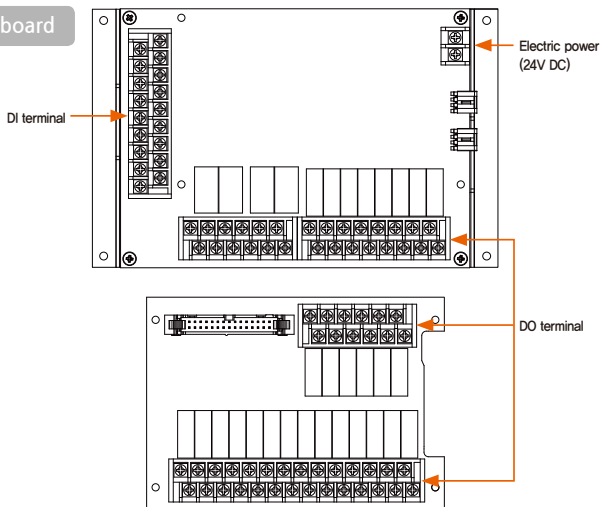
TEMI2000
Control part



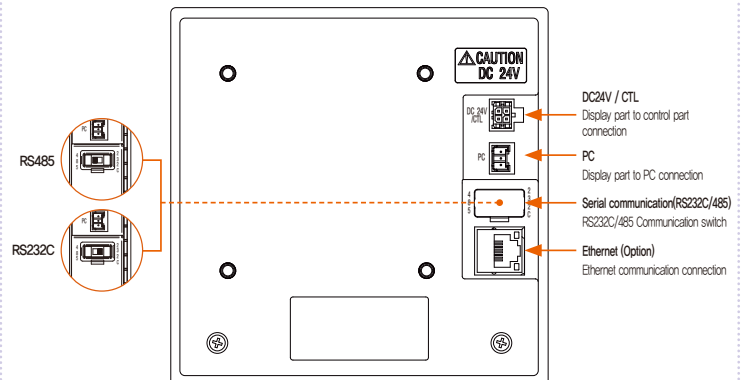
TEMP2000
Control part



I/O board



Display part



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