



Multi-loop Temperature Controller

TLC990^e

TLC880

Individual RUN/STOP without trigger

Prevent malfunction by communication delay case of multiful alarms.



Selectable data communication

It prevents from decreasing speed by unnecessary large data



Users' communication

User can change whole by TLC data at the PLC



Automatically connecting recognition

Recognizing devices without initialization



Self testing software

TLC automatically tests installation state



Heater Burn-out Alarm (12A, 50A, 100A)

Supporting whole control output (1,280 channel)
- Option



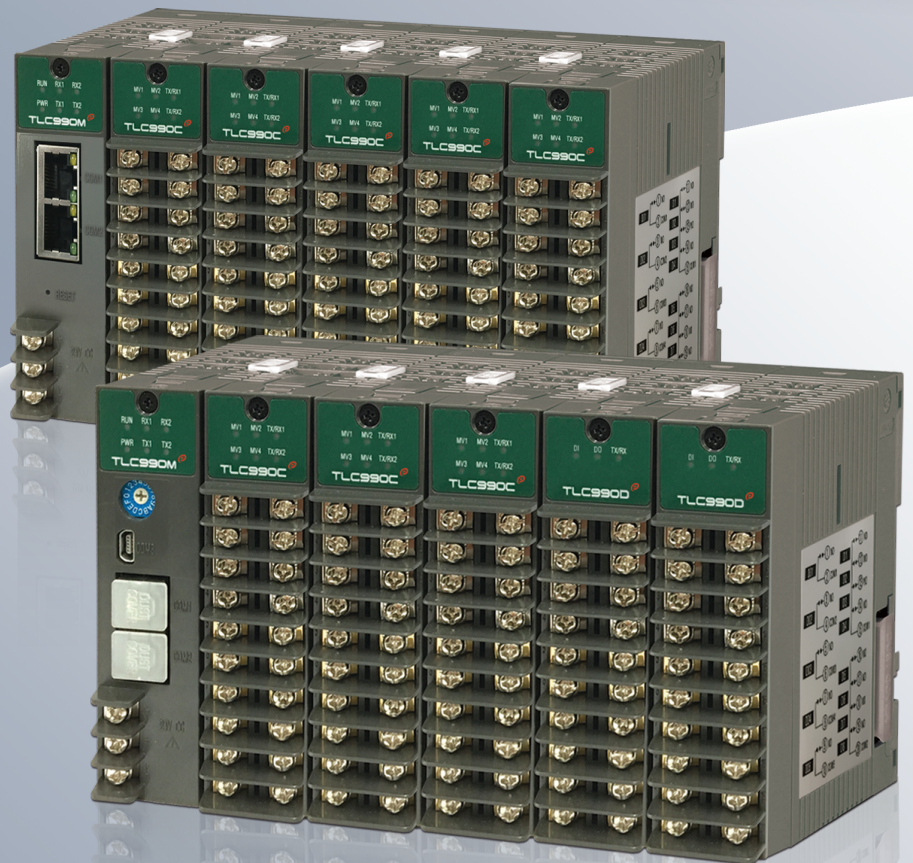
40 Digital Outputs / 32 Digital Inputs

The various alarm output is possible
The individual RUN/STOP is possible using external inputs



Power saving mode

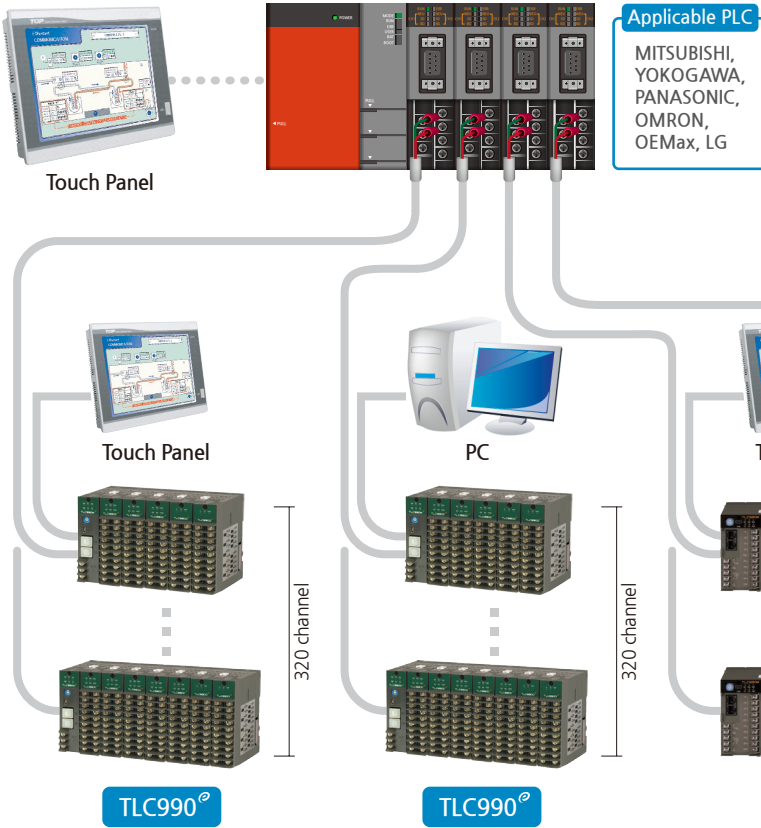
By automatic control of MV,
the system is economical and safe



TLC990^o TLC880 Multi-loop Temperature Controller

Connect to Serial port

- Connect each Max. 320 channel to one PLC module.
So, Max, 1280 channel connectable



TLC can communicate any PLC without extra softwares

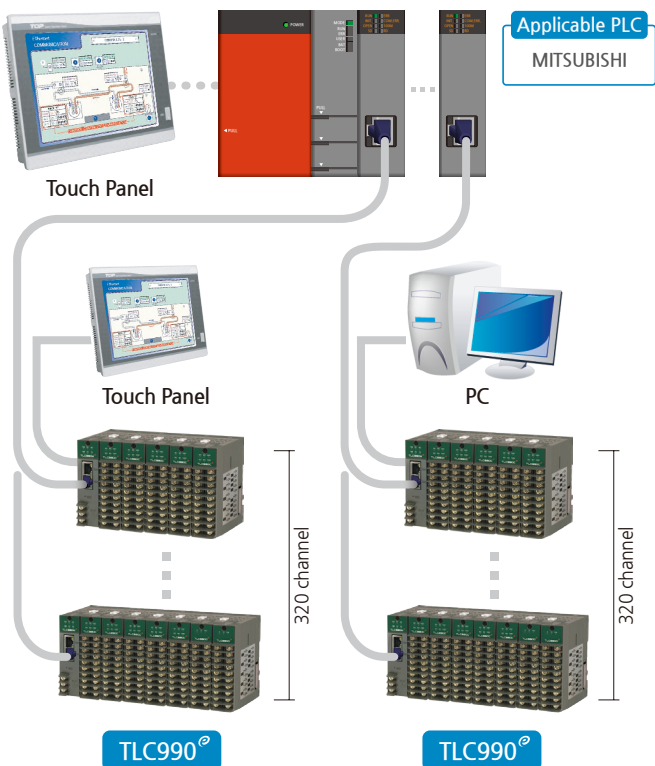
Use PLC user zone(area)
Active practice TLC parameters save automatically in PLC user zone

PLC		TLC	
D-Register		D-Register	
PU	Control Output	PU	Control Output
Status Information		Status Information	
SP	Alarm setting	SP	Alarm setting
Alarm setting	PID setting	PID setting	PID setting

TLC communicates with PLC right after connect a cable to

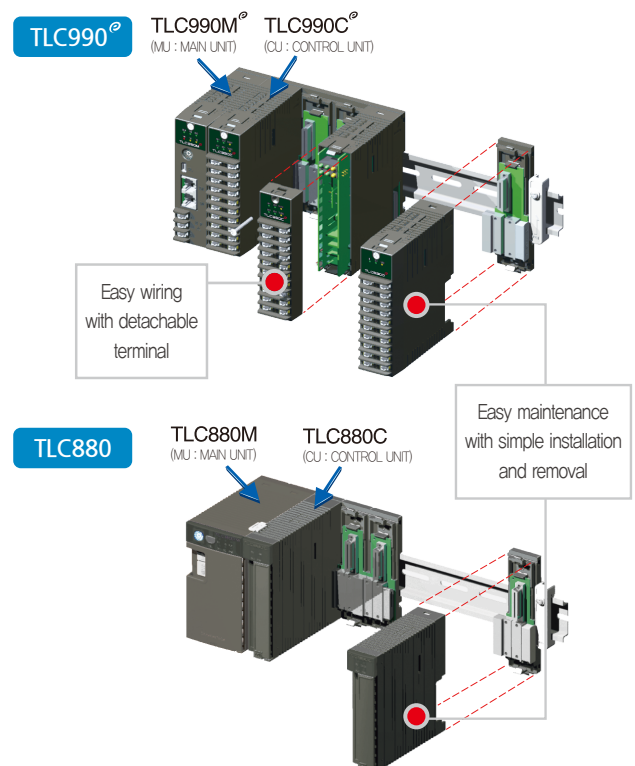
Connect to Ethernet port

- Connect each Max. 320 channel to one PLC module.



Terminal & Product installation, removal

- Improved maintenance and repair with simple installation and removal

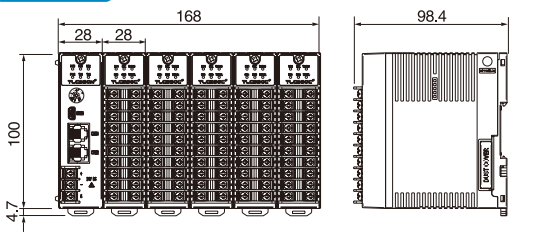


Product Specification

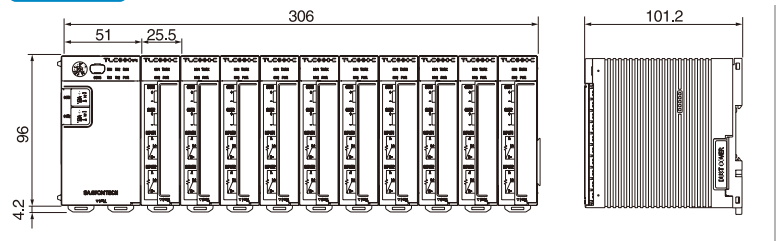
Group	TLC990 ^o	TLC880	
Display method	No indication : Parameter setting and monitoring using external connected devices (PC, PLC, GP, etc.) and serial or Ethernet communications(PC only program)		
Control mode	Normal control, Heating- Cooling control, Cascade normal control, Cascade Heating- Cooling control		
Analog input	No. of channel	4 channel/CU(Universal input)	
	Max. No. of control channel	1280 channel/320CU(MU 1EA + CU 5EA)	
	Input type	TC	K, J, E, T, R, B, S, L, N, U, W, PL, C
		RTD	PtA, PtB, PtC, JPtA, JPtB, JPtC
		DCV	0~10mV DC, -10~10mV DC, -10~20mV DC, 0~100mV DC, -50~100mV DC, 0~1V DC, -1~1V DC, 0~5V DC, 1~5V DC, -5~5V DC, 0.4~2V DC, 0~10V DC, -5~10V DC (4~20mA, 0~20mA, External resistance 250Ω, 500Ω Attach)
Sampling time	250ms/Channel		
Input accuracy	±0.1% of full scale ±1 digit(A/D 18 bits)		
Analog output	Output specification	SSR	ON voltage : 15VDC (Load resistance : Min. 600Ω/Pulse width : Min. 5ms)
		SCR	4~20mA DC, 0~20mA DC, 0~5V DC, 1~5V DC, 0~10V DC, 0~100mV DC (Load resistance : Max.550Ω)
		Relay	-
Output accuracy	±0.3%(D/A 14 bits)		
Digital input/ Digital output	No. of input/output	DI 32points & DO 20points, DO 40points Max.	
	Contact point quantity of input	Max. 12V DC, 10mA	
	Contact point quantity of output	Normal open(Max. 30V DC/1A, 250V AC/1A)	
Heater break alarm (HBA)	Type	12A, 50A, 100A	
	CT sensor/Accuracy	800 : 1 / ±3% of full scale ±1 digit	
Alarm	2points/Channel(21 Type)		
Communication	Interface	RS232C, RS422A, RS485(Communication speed : 9600, 19200, 38400, 115200 bps)	
	Protocol	ETHERNET(10BASE-T or 100BASE-TX)	
	Power	PC-Link, PC-Link(Checksum), Modbus(ASCII, RTU), Modbus TCP	
Electric source	Power consumption	24V DC	90~240V AC, 50/60Hz
		6VA Max. (MU 1EA+CU 1EA)	12VA Max. (MU 1EA+CU 1EA)
		25VA Max. (MU 1EA+CU 5EA)	43VA Max. (MU 1EA+CU 10EA)
Operating environment	10~50°C, 20~90% RH		
Weight	MU : 116g, CU : 182.5g	MU : 260g, CU : 110g	
	DIO : 205g, DO : 190g	-	

External Dimension(20channels)

TLC990^o



TLC880

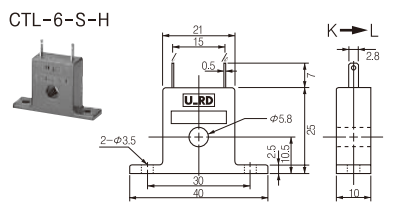


One Mail unit connect max. 5 control units(20 channels) case of TLC990^o
DIO / DO unit will be able to add until maximum 4, length of one unit is 28mm.

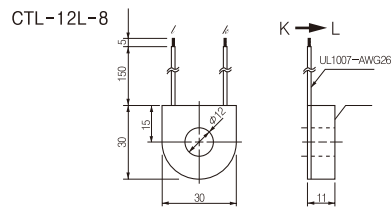
One Mail unit connect max. 5 control units(20 channels) case of TLC880

Optional device(Sold Separately)

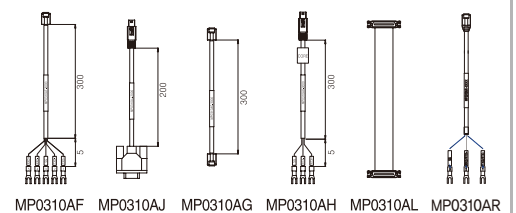
■ CT Sensor (12A/50A)



■ CT Sensor (100A)



■ Cable



TLC MAIN UNIT Model and Order Code

NAME	1	2	-	3	4
TLC990M [®]	■	■			
TLC880M	■	■		■	■

TLC MAIN UNIT Order Example

Order Code : TLC990ME - ^{1 2}83

⁸ : RS485 Serial port of COM1 & COM2
³ : RS232C Serial port of COM3

NO.	NAME	SIGN	CONTENT
1	Serial port (COM1 & COM2)	8	RS485
		2	RS422A
	Ethernet port	C	Ethernet
2	Serial port (COM3)	3	RS232C
	Ethernet port	8	RS485
3	DI & DO (Option)	E	Ethernet
		A	DI 4 Points & DO 4 Points (Dependent Common)
		B	Dependent 2 Common DO 8 Points
		C	Dependent 2 Common DI 8 Points
4	DO Type (Option)	R	Relay
		O	Open Collector

TLC CONTROL UNIT Model and Order Code

NAME	1	2	-	3	4	-	5	6	7	8	-	9	10	-	11	12	-	13	
TLC990C [®]	■	■		■	■		■	■	■	■		■	■		■	■			(1, 2channel)
TLC880C	■	■		■	■		■	■	■	■		■	■		■	■		■	(3, 4channel)

NO.	NAME	SIGN	CONTENT
1	Control Method	1	1channel Normal Control
		2	2channel Normal Control
		H	Heating / Cooling Control
		C	Cascade Normal Control
		D	Cascade Heating / Cooling Control
2	Sampling Time	1	100msec / channel
		2	250msec / channel
3	Input Type & Range		Channel 1&3 Refer to Input Type table (T/C, RTD, DCV)
4			Channel 2&4
5	Output Type		Output 1&3
6			Output 2&4
7			Refer to Output & Control Type table
8	Control Type		Control 1&3
			Control 2&4
9	HBA (Option)		HBA 1&3 N : NONE B : HBA(100A)
			HBA 2&4 A : HBA(50A) C : HBA(12A)
11	Alarm Type		Alarm 1 Refer to Alarm type table (21 types)
12			Alarm 2
13	Control Unit Type		N : Normal, R : Right, L : Left

TLC CONTROL UNIT Order Example

Order Code : TLC990CE - ^{1 2}22 - ³K01 ⁴K05 - ^{5 6 7 8}SRCR - ^{9 10}AB - ^{11 12}03 04 (1,2channel)
 - 22 - K01 K05 - SRCR - AB - 03 04 (3,4channel)

² : 2channel Normal Control Control Method
² : 250msec / channel Sampling Time
^{K01}: T/C K type (-200 ~ 1370 °C)
 Input type/Range (Channel 1&Channel 3)
^{K05}: T/C K type (-200.0 ~ 1370.0 °C)
 Input type/Range (Channel 2&Channel 4)
^S : SSR Output type (Channel 1, 3)
^R : PID Control (Reverse) Control type (Channel 1, 3)
^C : SCR Output type (Channel 2, 4)
^R : PID Control (Reverse) Control type (Channel 2, 4)
^A : HBA (50A) HBA (Channel 1, 3)
^B : HBA (100A) HBA (Channel 2, 4)
⁰³ : Upper limit deviation Alarm 1 Type
⁰⁴ : Lower limit deviation Alarm 2 Type

Input Type Table

T/C

SIGN	INPUT RANGE
K01	-200 ~ 1370 °C
K05	-200.0 ~ 1370.0 °C
K09	0.0 ~ 800.0 °C
T01	-200 ~ 400 °C
T05	-200.0 ~ 400.0 °C
T08	0.0 ~ 400.0 °C

RTD

SIGN	INPUT RANGE
PA2	-200.0 ~ 850.0 °C
PC1	-50.00 ~ 150.00 °C

DCV

SIGN	INPUT RANGE
D09	1 ~ 5 V DC
D12	0 ~ 10 V DC

Output Type & Control Table

SIGN	Output Type
S	SSR (0~12 V DC) *note1
C	SCR (4~20 mA DC)
R	Relay *note2
1	0~20 mA DC
2	0~5 V DC
3	1~5 V DC
4	0~10 V DC
5	0~100 mV DC

SIGN	Control Table
A	ON/OFF Control (Reverse)
C	ON/OFF Control (Forward)
R	PID Control (Reverse)
F	PID Control (Forward)

*note1) 0~15V DC of SSR on TLC990[®]

*note2) Relay is not available on TLC990[®]

Alarm Type Table

SIGN	Alarm Type	Output Method		Standby Motion	
		Fwd.	Rev.	Off	On
01	PV upper limit (AH.F)	■		■	
02	PV Lower limit (AL.F)	■		■	
03	Deviation Upper limit (DH.F)	■		■	
04	Deviation Lower limit (DL.F)	■		■	
07	Deviation Upp.&Low. Limit Out (DO.F)	■		■	
08	Deviation Upp.&Low. Limit In (DI.F)	■		■	

* The cord table which is various wishes referring to the operating manual.

TLC990[®] DIO / DO UNIT Model and Order Code

NAME	1	NO.	NAME	SIGN	CONTENT
TLC990D [®]	■	1	DIO & DO (Option)	A	Independent DO 5 points
				B	Dependent 2 DI 8 points
					Independent DO 10 points

TLC990[®] DIO / DO UNIT Order Example

Order Code : TLC990DE - ¹A

A : DI 8points & DO 5points Independent DO 5 points
 Common DI 8 points



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