Products

1.) PID Temp Controller CEMA
CM24 , CM22 , CM21 , CM23, CM25

CM24
(W48XH48mm)

CM22
(W48XH96mm)

CM21
(W96XH96mm)

CM23
(W72XH72mm)

CM25
(W96XH48mm)

The Best Choice for Microprocessor Controllers

Control Temperature , Humidity , Pressure , Flow , PH

- **Various I/O Types**
- **Sampling Cycle 0.5 Sec**
- **Maximum with 3 sets of Alarm**
- **RS – 485 Communications (Modbus)**

Data Sheet

CEMA

DIGITAL CONTROLLER

CM20 SERIES

CM24
(W48XH48mm)

CM22
(W48XH96mm)

CM21
(W96XH96mm)

CM23
(W72XH72mm)

CM25
(W96XH48mm)

GENERAL

THE BEST CHOICE FOR MICROPROCESSOR CONTROLLERS

Control Temperature, Humidity, Pressure, Flow and PH.

- Various I/O Types
- Sampling cycle 0.5 sec. - can revise PV high spot and low point.
- Maximum with 3 sets of alarm - more than 20 alarm modes available.
- Remote SV / Transmission.
- RS-485 Communication (MODBUS).
- TTL Communication.
- RS-232 deposit and withdrawal function.
- Program 2 patterns 8 segments (programs events).
- Output2 4~20mA transmission (forward and reverse).
- Heating and Cooling Control.
- SCR / TRIAC Trigger.
- Motor valve control.
- Current monitoring alarm.

Product brief introduction

The CM20 series are microprocessor controllers, using H8/Tiny 16-bit CPU (H3687). Applications are control of temperature, humidity, flow and pressure. Change input to TC or RTD through a simple and easy software switch, also offers a various selection of inputs and outputs. Uses " PID + Fuzzy Logic" operation principle, to control fine demands.

The CM20 series has basic control and output functions, plus advanced special controls, input and output demand, joined option functions: Remote, RS485 communication, TTL communication, Transmission, motor valve control, and SCR / TRIAC Trigger. The reduction of nonessential equipment reduces cost.

The CM20 series can coordinate user's demand, providing functions such as Programmable RAMP/SOAK, and programmable elevation of temperature, hold, and the temperature reduction curve. There are 2 patterns, each of 8 segments - each segment controlling events.

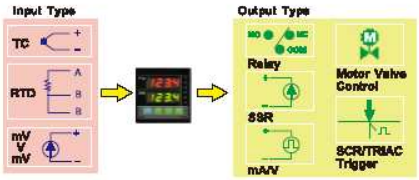
CM20 series microprocessor controllers offer high stability, user friendly and extendable functional design, and can match diverse peripherals, the best choice for specialized control.

The CM20 series has many models to suit your choice:

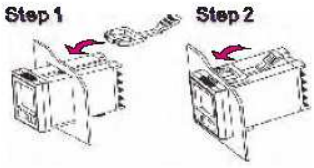
CM24 CM22 CM21 CM23 CM25

Features

2-1 Various I/O Types



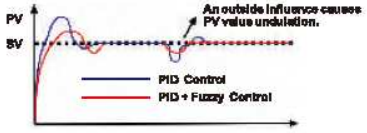
2-2 Easy Mounting



2-3 Diverse control mode

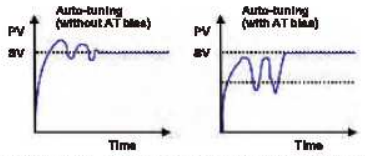
4 kinds of control mode, responding to different work environments. Quickly achieves accurate control temperature.

2-4 Fuzzy Logic Control



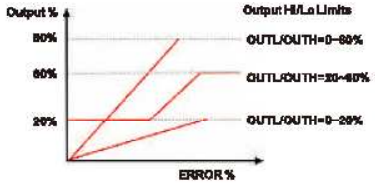
Built-in Fuzzy Logic suppresses overshoot due to SV changes or PV External disturbance.

2-5 Auto-Tuning (AT)



The KCE series controllers have Auto-tuning function. With PID parameter optimized, the device will automatically achieve accurate control temperature - satisfying special needs of environmental or temperature control, increasing accuracy and stability control.

2-6 Output Limits Setting



Built-in output limits function, sets output Lo% and output Hi%.

2-7 Front-panel indicators

Real-time monitoring the current control output status, and output display(0~100%). The program can indicate 2 patterns and 8 segments.

2-8 Auto / Manual mode

Convenient switching between auto / manual output modes. (Except model "KC-400")
(St-9-1=0 Return after 1 minute, St-9-1=1 Non-return)

2-9 Run / OFF Mode

When depressed, the "UP KEY" can directly override RUN/OFF.

2-10 Exterior contact cut SV1 / SV2

Pre-set 2 temperature setting through contact of external switching. (SV1/SV2)

FEATURES

FEATURES

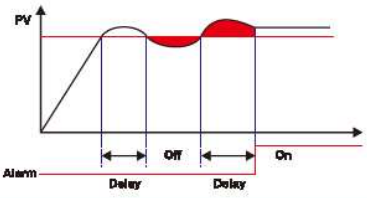
2-11 Alarm Function-Alarm Types

Alarm types listed below, maximum with 3 alarm sets.

Deviation	Program
Deviation High Alarm	Program Run Alarm
Deviation Low Alarm	Program End Alarm
Deviation High/Low Alarm	Segment End Alarm
Band Alarm	
PV	**System**
PV High Alarm	System Failed Alarm
PV Low Alarm	System Normal Alarm

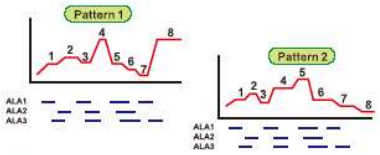
2-12 Alarm Function-Alarm Delay Time

This function avoids alarm frequent alarms due to external disturbance.



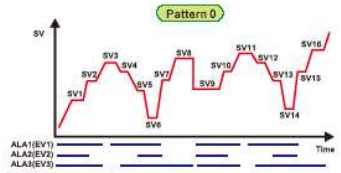
Special applications & Peripheral functions

3-1 Program 2 patterns - 8 segments
(Contains the event to establish)



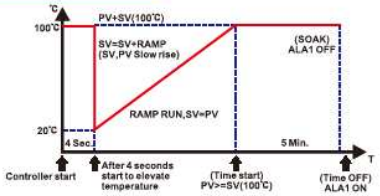
It is possible to set 2 patterns, each of 8 segments. Each group may be used independently. Used to plan each separate elevation of temperature, hold time, and temperature decrease curves. The 2 patterns of 8 segments may connected 1 pattern of 16 segments.

3-2 Program 1-pattern 16 segments
(Contains the event to establish)



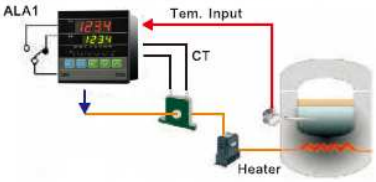
8 time interval temperature controls, matches the widespread time-belt hypothesis. Available controls for time and complex, system regulation temperature control.

3-3 Ramp & Soak



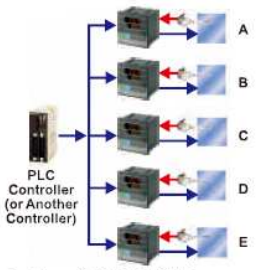
Constructs a single stage RAMP & SOAK control function. Available in situations which elevate temperature with a slow start.

3-4 Current Monitoring Alarm



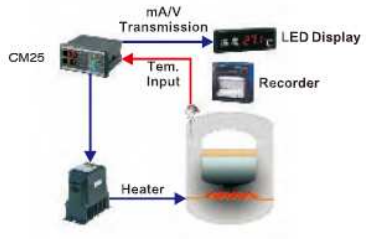
Heater current flowing through CT can be displayed on controller. If current is less than ALA1 set value, ALA1 will be activated.

3-5 Remote SV



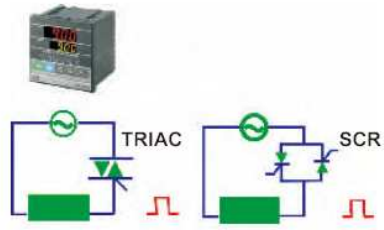
Input type:0~20mA, 4~20mA,
0~5V, 0~10V, 1~5V, 2~10V,0~1V

3-6 Transmission



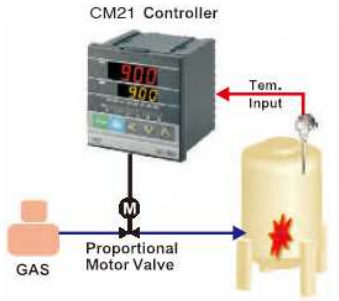
Signal type:PV,SV
Output type:0~20mA, 4~20mA,
0~5V, 0~10V, 1~5V, 2~10V,0~1V

3-7 SCR / TRIAC Trigger



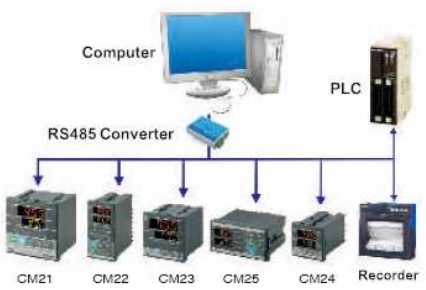
Method : 1φ/3φ Zero Cross Control
1φ/3φ Phase Angle Control

3-8 Motor Valve Control



3-9 Communication(RS485)

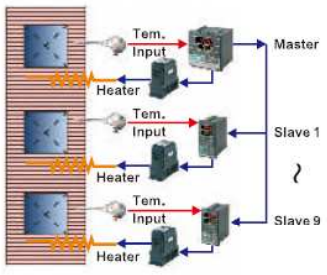
MODBUS Protocol



Up to 31 controllers can be connected(Max length 1 km).

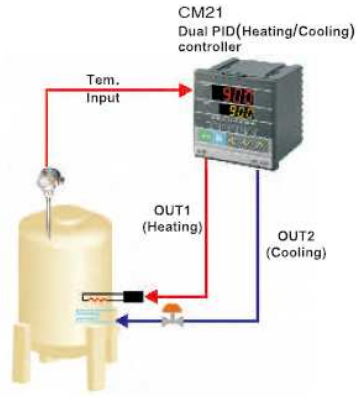
3-10 Communication(TTL)

Up to 10 controllers can be connected(Max length 1 M).

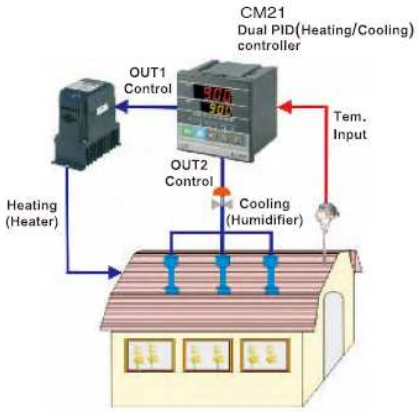


The SV value of slave controllers can be remotely controlled by a master controller, and reach to max. value at the same time.

3-11 Heating and Cooling Control

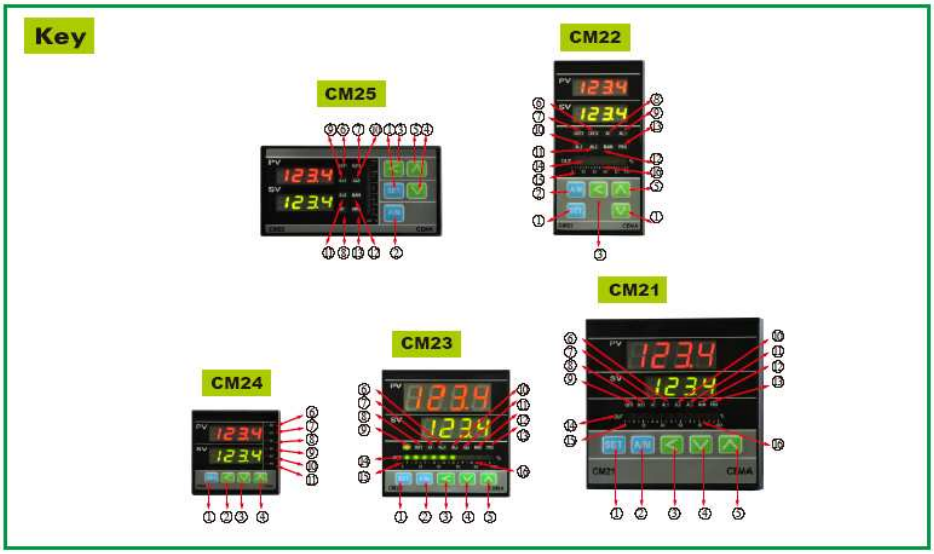


3-12 Greenhouse control(Heating and Humidity)



SPECIFICATIONS

Key



❶		Set Key	❼	OUT2	OUT2 light (Green)	⓭	PRO	Program Running light
❷		Auto/Manual Key	❽	AT	Auto-tuning light (Orange)	⓮	OUT%	Output % Bar-Graph display
❸		Shift Key	❾	AL1	Alarm1 light (Red)	⓯	1—8	Program 1-8 segment
❹		Down Key (decrease values)	❿	AL2	Alarm2 light (Red)	⓰	1、2	Program 1-2 pattern
❺		Up Key (Increase values)	⓫	AL3	Alarm3 light (Red)			
❻	OUT1	OUT1 light (Green)	⓬	MAN	Manual output light			

SPECIFICATIONS

Input	Type of Input	TC(K,J,R,S,B,E,N,T,W,PLII,U,L)
		RTD(PT100,JPT100,JPT50)
		Linear(0~1V,0~5V,0~10V,1~5V,2~10V,-10~10mV,0~10mV 0~20mV.0~50mV,10~50mV,4~20mA,0~20mA)
	Input Sampling Time	250 ms
	Input Resolution	16 bit(Each)
Indication	PV/SV Indication	4 Digit, 7 segmet display
	Consrant Value System	Non-volatile memory(E^2PROM)
	Indication Accuracy	0.5% FS
Control Mode	Proportional Band(P)	0~200 % (On/Off action at P=0)
	Integral Time(I)	0~3600 sec. (PD action at I=0)
	Derivative Time(D)	0~900 sec. (PI action at D=0)
	Cycle Time	0~150 sec. (4~20mA→0,SSR→1,Relay→10)
	Dead Band Time	0~1000 sec. (dead time compensation)
Output out1/out2	Relay Output	Contact,SPDT,3A240VAC
	Voltage Output	Voltage Pulse, 20VDC/20mA
	Linear Output	4~20mA,0~5V,0~10V,1~5V,2~10V
	Output Type	Output1:Heat/Cool ; Output2:Cool
Alarm	Channel	3 channel(AI1/AL2/AL3)
	Mode	20 alarm Modes Available
	Timer	Ficker Alarm, Continuous Alarm, on Delay Timer Alarm
General Specifications	Rated Power Supply & Frequency	AC 85~265V,50/60HZ
	Power Consumption	4VA
	Ambient Temperature	-25℃~65℃
	Ambient Humidity	50~85% RH(non condensing)