MC-5 Series Micro Processor Temperature Controller

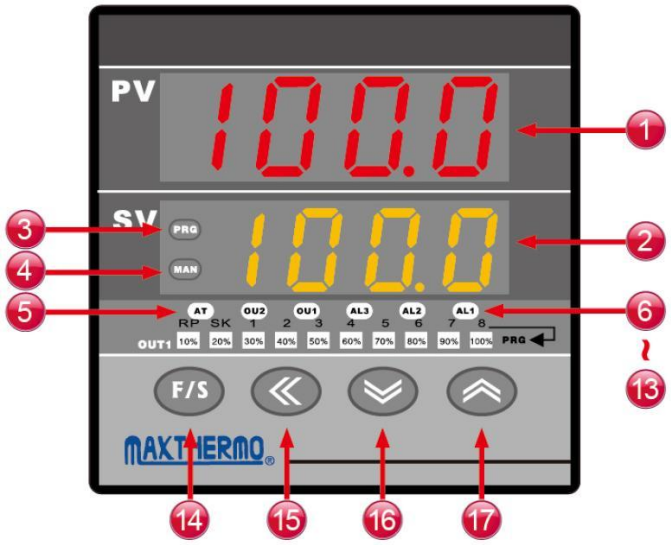
Application

Plastic, rubber, equipment	Semiconductor electronic components industry	Food related industry
Injection molding machinery	Preheater	Refrigerating machine
Extruding machinery	Cleaning equipment	(General, for fishing vessel)
Mold temperature controllers	Mold equipment	Dryer
Vacuum forming	Bonding machine	Humidifier
Blow molding (Thermo foaming)	Diffusion equipment	Bakery, confectionery equipment
Electric furnaces	**Pottery manufacturing Ceramic and Glass industry**	**Packing machine industry**
Baking furnace	Ceramic industry	Bag-making machinery
Heavy oil, gas furnaces	Glass industry	Filling packing machinery
Incinerator	Porcelain enameling	Hot blast sealing
Aluminum, tin, lead, zinc melting furnace	Grind stone manufacturing	Shrinking packing machinery
Vacuum furnace		

Features

PID auto tuning	Self-diagnosis function.
Two PID control processes, with two individual outputs.	Free range voltage from AC 85V~265V or DC24V.
Multi range input (TC,RTD,mV), each 14 BIT resolution.	Optional Remote SV and transmitter output.
Relay output, SSR drive, 4~20mA changeable by a module.	Manual function
Three-point alarm, with 19 alarm modes.	RS232 or RS485 is available for remote monitoring.
Auto Zero and Auto Span circuit keep good accuracy.	8 steps of Ramp & 8 steps of Soak
Heater broken alarm optional	Soft start function
Motor valve optional	Multi level PID

Panel Function



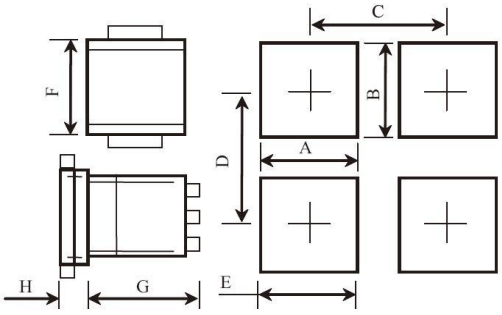
	MARKS/DESCRIPTIONDESCRIPTION			MARKS/DESCRIPTIONDESCRIPTION	
1	PV	Process value display	11	RP	Ramp action indication
			12	SK	Soak action indication
2	SV	Set value	13	1~8	1~8 Segment indication
			14	OUT1%	Output percentage of out1
3	PRG	Programming action indication	15	F/S	Function key/Set key
4	MAN	Manual action indication			
5	AT	Auto tuning action indication	16		Shift key
6	OUT1	Output1 action indication			
7	OUT2	Output2 action indication	17		Down key
8	AL1	Alarm1 action indication			
9	AL2	Alarm2 action indication	18		Up key
10	AL3	Alarm3 action indication			

Standard Specification

<table>
<tr><th>Model</th><th>MC-5438</th><th>MC-5538</th><th>MC-5638</th><th>MC-5738</th><th>MC-5838</th></tr>
<tr><td>Products</td><td>  </td><td>  </td><td>  </td><td>  </td><td>  </td></tr>
<tr><td colspan="6">Standard specification</td></tr>
<tr><td>Dimension</td><td>48x48mm</td><td>48x96mm</td><td>96x48mm</td><td>72x72mm</td><td>96x96mm</td></tr>
<tr><td>Working voltage</td><td colspan="5">AC85~265V, DC24C (Optional)</td></tr>
<tr><td>Frequency</td><td colspan="5">50 / 60Hz</td></tr>
<tr><td>Power consumption</td><td>Approx 3VA</td><td>Approx 4VA</td><td>Approx 4VA</td><td>Approx 3VA</td><td>Approx 4VA</td></tr>
<tr><td>Input</td><td colspan="5">Accuracy：0.3%FS, Sample time：300ms</td></tr>
<tr><td>(TC)
(RTD)
(mA DC)
(Voltage DC)</td><td colspan="5">
<table>
<tr><th>Type</th><th>Range</th><th>Type</th><th>Range</th></tr>
<tr><td>K1</td><td>0~200</td><td>r</td><td>0~1700</td></tr>
<tr><td>K2</td><td>0~400</td><td>E</td><td>0~1000</td></tr>
<tr><td>K3</td><td>0~800</td><td>S</td><td>0~1700</td></tr>
<tr><td>K4</td><td>0~1000</td><td>b</td><td>0~1800</td></tr>
<tr><td>K5</td><td>0~1200</td><td>n</td><td>-200~1300</td></tr>
<tr><td>j1</td><td>0~200</td><td>Pt1</td><td>-50~50</td></tr>
<tr><td>j2</td><td>0~400</td><td>Pt2</td><td>0~100</td></tr>
<tr><td>j3</td><td>0~800</td><td>Pt3</td><td>0~200</td></tr>
<tr><td>j4</td><td>0~1000</td><td>Pt4</td><td>0~400</td></tr>
<tr><td>j5</td><td>0~1200</td><td>Pt5</td><td>-200~600</td></tr>
<tr><td>t1</td><td>-50~50</td><td>jPt</td><td>-200~500</td></tr>
<tr><td>t2</td><td>-100~100</td><td>Lin</td><td>-1999~9999</td></tr>
<tr><td>t3</td><td>-200~400</td><td></td><td></td></tr>
</table>
</td></tr>
<tr><td>DP position</td><td colspan="5">0000, 000.0, 00.00, 0.000 (Available for mA or voltage DC input)</td></tr>
<tr><td>Output1</td><td colspan="5">Main control output (HEAT or COOL)</td></tr>
<tr><td>Relay</td><td>1A or 1C
5A/250VAC</td><td>1A or 1C
5A/250VAC</td><td>1A or 1C
5A/250VAC</td><td>1A or 1C
5A/250VAC</td><td>1A or 1C
5A/250VAC</td></tr>
<tr><td>Voltage pulse</td><td colspan="5">For SSR drive, 20mA / DC24V</td></tr>
<tr><td>mA DC</td><td colspan="5">4~20mA, 0~20mA, Maximum load resistance：600Ω</td></tr>
<tr><td>Voltage DC</td><td colspan="5">0~5V, 0~10V, 1~5V, 2~10V. Maximum load current：20mA</td></tr>
<tr><td>Alarm1</td><td>1A
5A/250VAC</td><td>1A
5A/250VAC</td><td>1A
5A/250VAC</td><td>1A
5A/250VAC</td><td>1A
5A/250VAC</td></tr>
<tr><td>Control algorithms</td><td colspan="5">PID, P, PI, PD, ON/OFF(P=0)</td></tr>
</table>

PID range	P：0.0~3000, I：0~7200 sec., D：0~1800 sec.				
Ramp/Soak program	1 Ramp + 1 Soak = 1 Segment 8 Segments (max.)				
Humidity range	0~80%RH				
Operating temperature	0~65°C / -10~50°C				
Weight (approx)	Approx 170g	Approx 240g	Approx 240g	Approx 260g	Approx 330g
Optional specification					
Communication	Protocol：MODBUS RTU, Interface：RS-232 / RS-485				
Output1	Motor Valve Control (Open loop)				
Output2	Cool				
Relay	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC
Voltage pulse	For SSR drive, 20mA / DC24V				
Transmission	Available for PV and SV transmission				
mA DC	4~20mA, 0~20mA, Maximum load resistance：600Ω (Optional)				
Voltage DC	0~5V, 0~10V, 1~5V, 2~10V. Maximum load current：20mA				
Remote SV	4~20mA, 0~5V, 0~10V, 1~5V, 2~10V are available				
Alarm1	Alarm x 1 (Standard)				
Alarm2	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC
Alarm3	X	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC	1A 5A/250VAC

External Dimension



Unit：mm

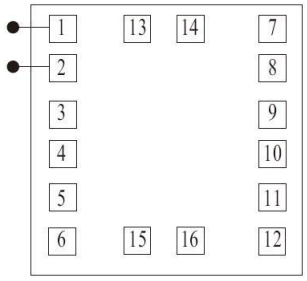
Model	A	B	C	D	E	F	G	H
MC-5438	46 $^{+0.5}_{-0}$	46 $^{+0.5}_{-0}$	70	70	48	48	83	10.5
MC-5538	46 $^{+0.5}_{-0}$	91 $^{+0.5}_{-0}$	70	120	48	96	83	10.5
MC-5638	91 $^{+0.5}_{-0}$	46 $^{+0.5}_{-0}$	120	70	96	48	83	10.5
MC-5738	68 $^{+0.5}_{-0}$	68 $^{+0.5}_{-0}$	100	100	72	72	83	10.5
MC-5838	91 $^{+0.5}_{-0}$	91 $^{+0.5}_{-0}$	120	120	96	96	83	10.5

Diagram

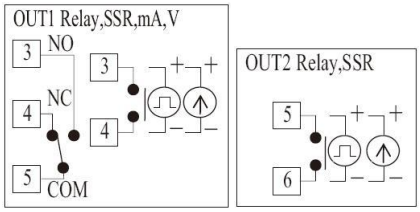
MC-5438

A. Power Supply

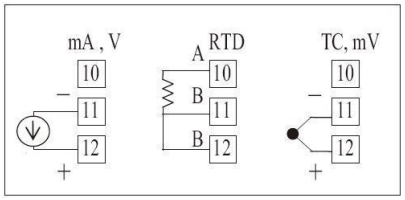
AC85~265V 50/60Hz
or DC24V (option)



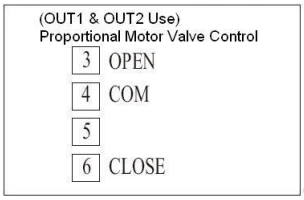
B. Control Output



C. Input

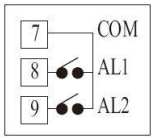


Control Output (option)

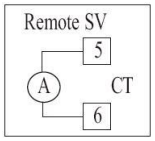


Open Loop

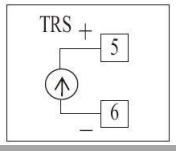
D. Alarm



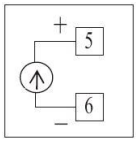
E. CT



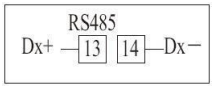
F. Transmission



G. Remote SV



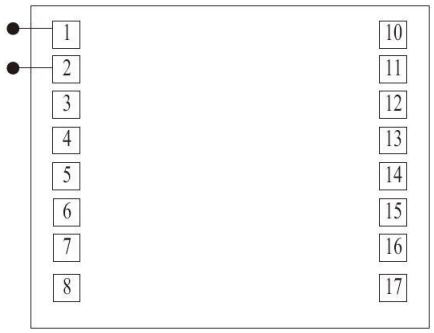
H. Communication



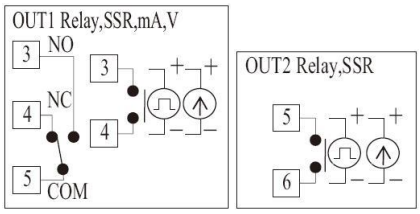
MC-5738

A. Power Supply

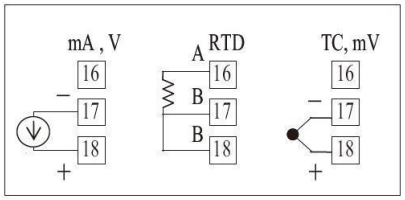
AC85~265V 50/60Hz
or DC24V (option)



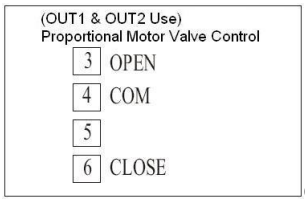
B. Control Output



C. Input

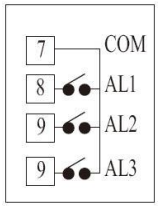


Control Output (option)

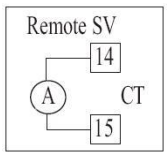


Open Loop

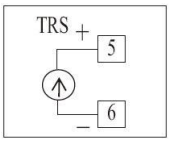
D. Alarm



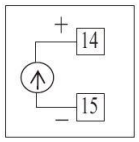
E. CT



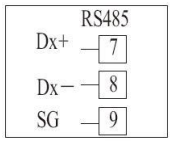
F. Transmission



G. Remote SV



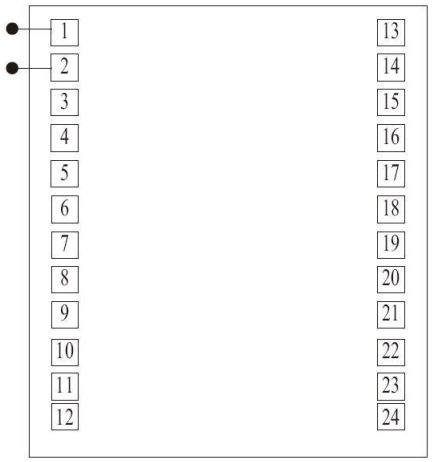
H. Communication



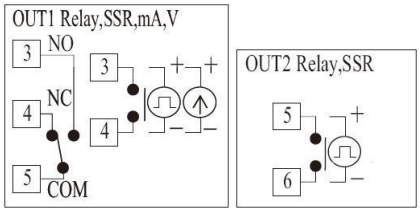
MC-5538 / MC-5638 / MC-5838

A. Power Supply

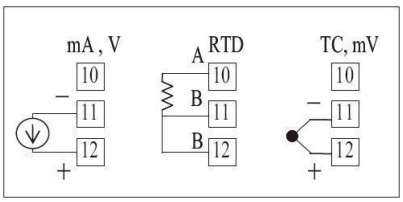
AC85~265V 50/60Hz
or DC24V (option)



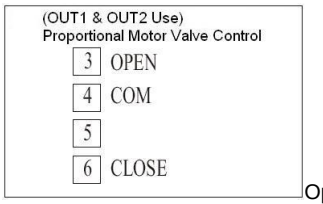
B. Control Output



C. Input

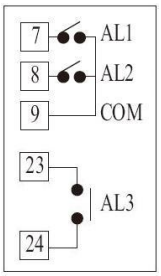


Control Output (option)

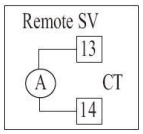


Open Loop

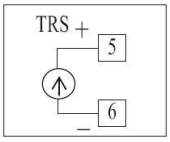
D. Alarm



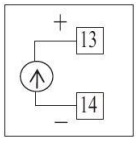
E. CT



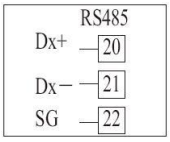
F. Transmission



G. Remote SV

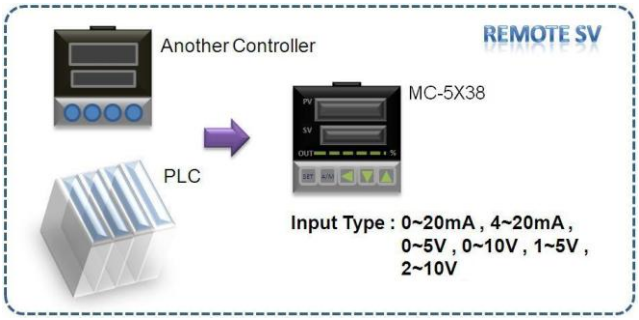


H. Communication

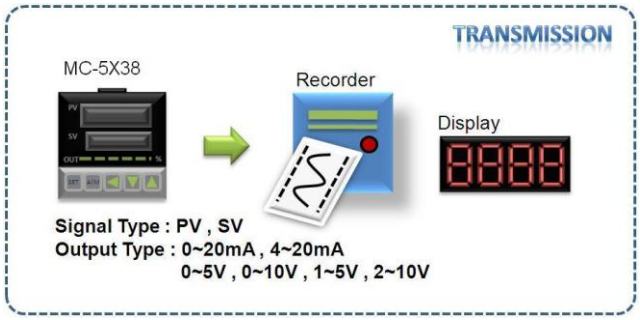


Special functions

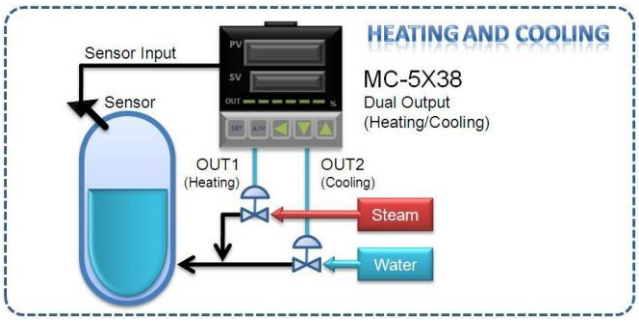
Remote SV



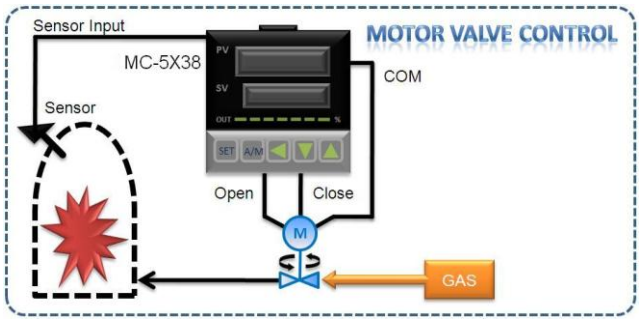
Transmission



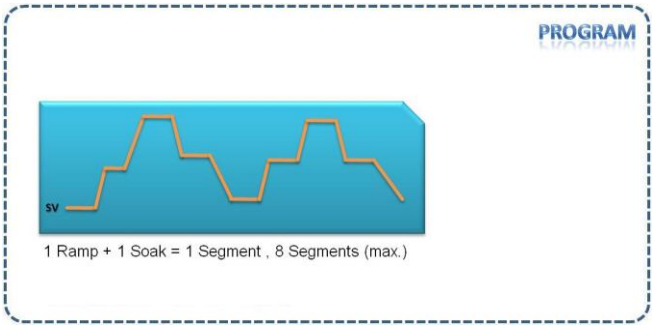
Dual Output (Heating and Cooling)



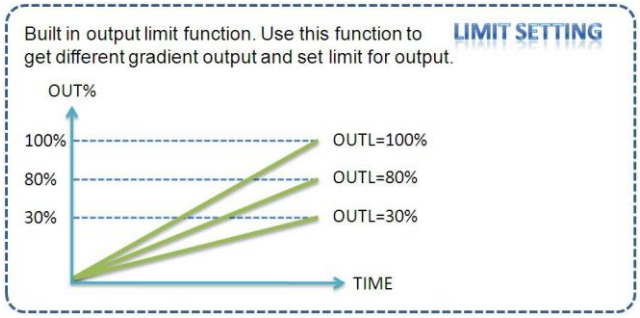
Motor Valve Control



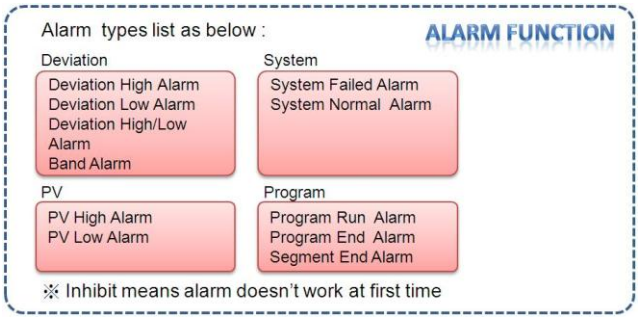
Program



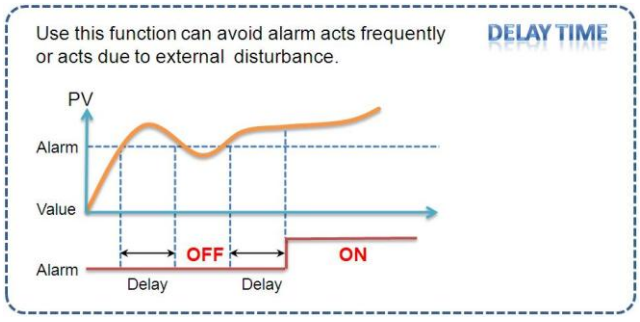
Limit Setting



Alarm Function

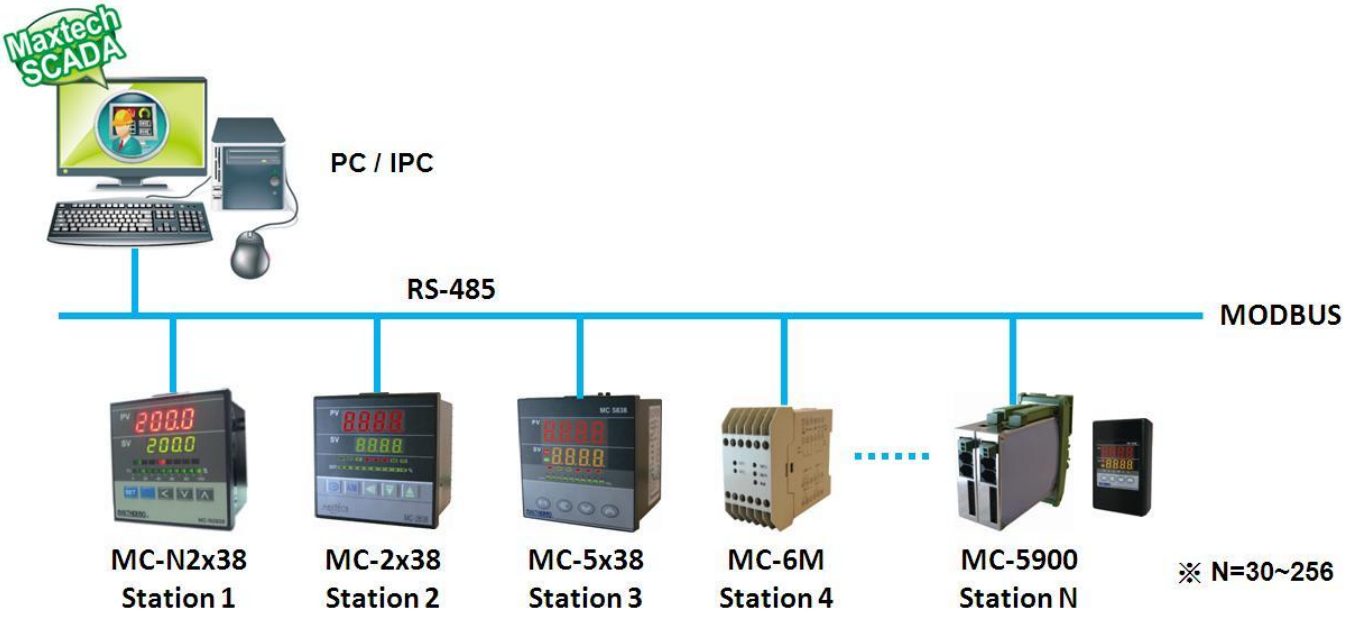


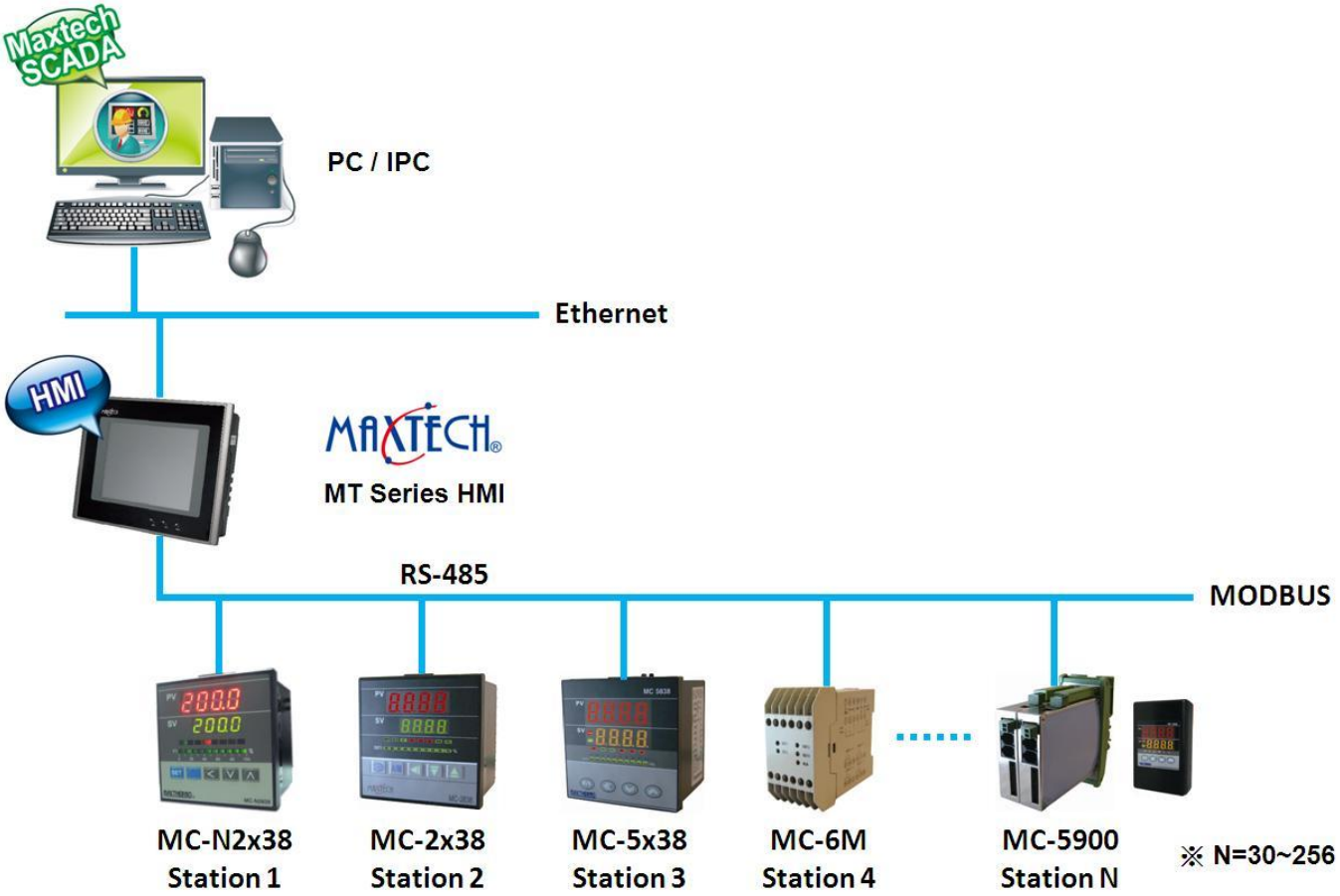
Delay Time

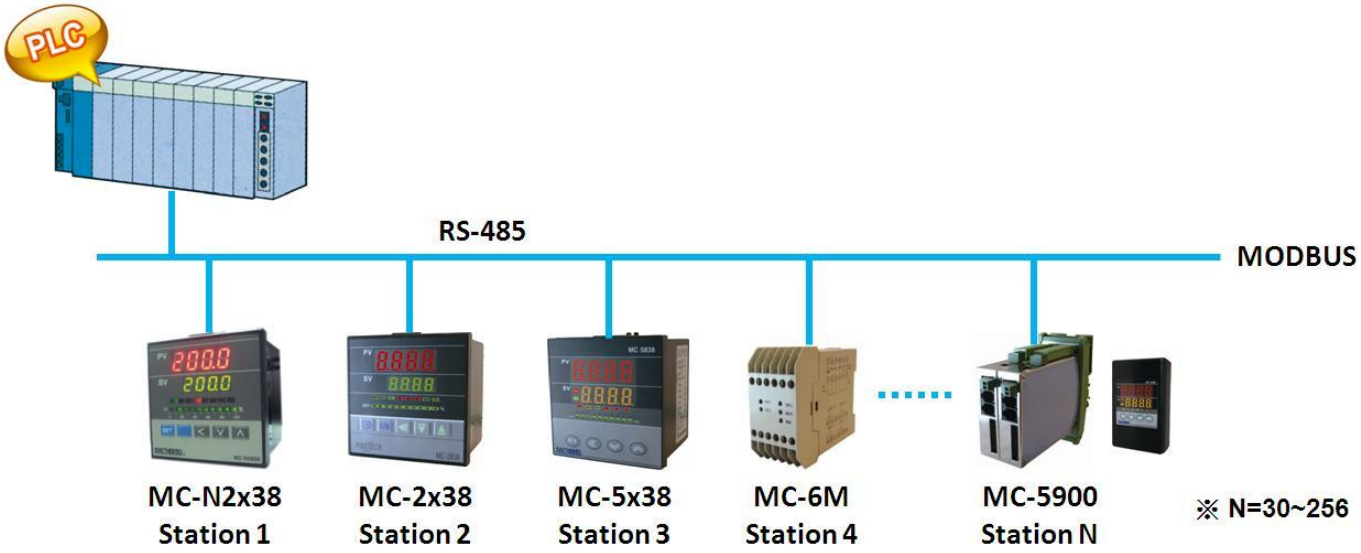


Application Examples Of System Integration

Maxtech Temperature Controllers







Order information

MC - 5838 - 1 0 1 - 0 0 2

A B C D E F G

A-Model NO：

MC-5438 with size 48x48mm (DIN 1/16)
MC-5538 with size 48x96mm (DIN1/8)
MC-5638 with size 96x48mm (DIN1/8)
MC-5738 with size 72x72mm
MC-5838 with size 96x96mm (DIN1/4)

B-Out 1 control output mode for heating or cooling：

0-None
1-Relay contact, SPDT 5A/240VAC
2-SSR Voltage pulse,24VDC/20mA
3-Current, 4-20mA
4-3 wire system motor valve control (5A/240VAC)
A-0~5V
B-0~10V
C-1~5V
D-2~10V

C-Out 2 control output mode for cooling：

0-None
1-Relay contact, SPDT 5A / 240VAC
2-SSR Voltage pulse, 24VDC/20mA

D-Alarm：

0-None
1-One set alarm
2-Two set alarm
3-Three set alarm *(except MC-5438)

E-Transmitter：

0-None
1-4~20mA (Adjustable)
2-0~20mA (Adjustable)
A-0~5V
B-0~10V
C-1~5V
D-2~10V

F-Second Input：

0-None
1-4~20mA remote set point
2-0~20mA remote set point
3-CT(Heater broken alarm)
A-0~5V remote set point
B-0~10V remote set point
C-1~5V remote set point
D-2~10V remote set point

G-Communication：

0-None
1-RS232
2-RS485

Contact

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