

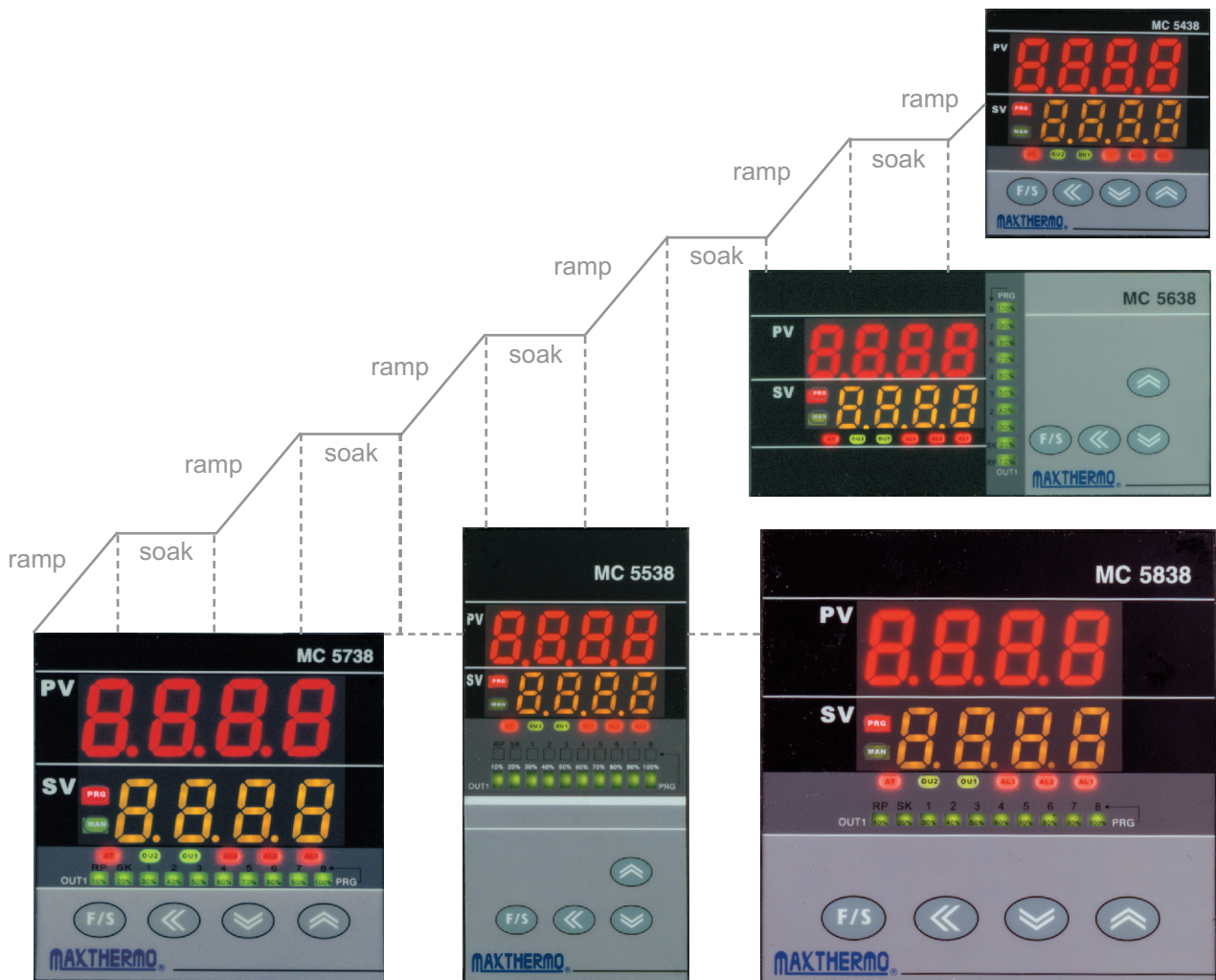
# Temperature Controllers

## MC 5438/MC5538/MC5638

## MC5738/MC5838



- FREE ARRANGEMENT FOR EVERY PARAMETER
- MODBUS RTU COMMUNICATION OPTIONAL
- 8 STEPS OF RAMP & 8 STEPS OF SOAK
- HEATER BROKEN ALARM OPTIONAL
- MULTI FUNCTION OF ALARM
- TRANSMISSION OPTIONAL
- MOTOR VALVE OPTIONAL
- DUAL OUTPUT OPTIONAL
- SOFT START OPTIONAL
- REMOTE SV OPTIONAL
- MULTI LEVEL PID



**Display:**

Digital display: 7 segments / Measured value (PV) Red LED 4 digits, Set value (SV) Yellow LED 4 digits  
 Display accuracy:  $\pm (0.3\% \text{ FS} + 1 \text{ digit})$  at  $23 \pm 5^\circ\text{C}$  Refer to Table of Measuring Range Codes.  
 Display resolution: Depends on measuring range (0.001,0.01,0.1,1)  
 Sampling cycle: 0.3 sec  
 Action display / colors: LED lamp indication:  
 Control output (OUT) / Green, alarm / Red, Auto tuning (AT) / Red, Manual control (MAN) / Green, Output percentage / Green, Program (PRG) / Red.

**Setting**

Setting: By 4 font key switches  
 Setting range: Same as measuring range  
 Setting limit: Higher / lower limits individual setting as desired within measuring range (lower limit value < higher limit value)

**Input**

K.J.T.R.E.S.B.N.RTD.Linear  
 (Multi-input, multi-range: Refer to Table of Measuring Ranger Codes.)  
 External resistance: 100  $\Omega$  max.  
 Input impedance: 600k  $\Omega$  min.  
 Burnout: Standard feature (up scale)  
 Cold lunction temperature Compensation accuracy:  $\pm 1^\circ\text{C}$  (-5 ~70 $^\circ\text{C}$ )  
 Amperage: Approx. 0.25mA  
 Lead wire tolerable resistance: 5  $\Omega$  max.  
 Voltage: -10~10, 0~10, 0~20, 0~50, 0~100mV DC or 0~1, 0~2, 0~5, 1~5, 0~10V DC (Multi input, programmable range; Refer to Table of Measuting Range Codes.)  
 Input impedance: 500k  $\Omega$  min.  
 Current: 4~20, 0~20mA DC (Multi input, programmable range: Refer to Table of Measuting Range Codes.)  
 Receiving impedance: 250  $\Omega$   
 Sampling cycle: 0.3 sec  
 PV bias: -2000~2000 unit  
 PV filter: 0.001~1.000  
 Isolation: Insulated between input and output (not insulated between input and system, SV bias and CT input)

**Control**

Control mode: Auto-tuning PID  
 Proportional band (P): 0-3000 unit (0=On-Off action)  
 Integral lime (I): 0-3600 sec (0=P. PD action)  
 Derivative time (D): 0-900 sec (0=P. PI action)  
 On-Off hystereeis: 0.0~2000 unit  
 Proportional cycle: 0~150 sec  
 Higher and lower output limit: 0.0~100.0% (lower limit < higher limit)

**Control output type / rating**

Contact output 240V AC 6A / resistive load  
 Current output 4-20mA DC / load resistance: 600  $\Omega$  max.  
 SSR drive voltage output 24  $\pm$  2V DC / load current: 20mA max.  
 Voltage output 0~10V DC / load current: 2mA max.  
 Isolation: Insulated between control output and system and input (not insulated between control output, P.V and analog output)

### Manual control

Output setting range:	0.0~100.0% (setting resolution: 0.1%) Within range of higher / lower output limits
Output resolution:	0.1%

### Additional Functions (Optional)

#### Alarm output

Alarm method:	Individual setting and individual output. higher and lower limit alarms
Alarm type:	Deviation value alarm or absolute value alarm is selectable.
Alarm setting range:	Deviation value: $\pm 2000$ unit Absolute value: 0~2000 unit
Alarm action:	On-Off action
Action hysteresis:	1~999 unit (both higher and lower limits)
Inhibit mode:	Selectable (both higher and lower limits)
Alarm output / rating:	Contact 1a (common) / 240V AC 6A (resistive load)

#### Heater break alarm (optional)

Alarm action:	Heater amperage detected by externally attached CT (CT provided) Alarm output On upon detection of heater break while output is On. Alarm output On upon detection of heater loop alarm while output is Off.
Current setting range:	0.1~100.0A (Alarm action stops when Hba is disabled)
Setting resolution:	0.1A
Amperage display:	0.0~100.0A
Display accuracy:	1%FS
Minimum time for action confirmation:	On time: 250 msec. Minimum
Alarm output / rating:	Contact 1a / 240V AC 6A (resistive load)
Sampling cycle:	0.3 sec
Isolation:	Insulated between CT input and output (not insulated between CT input and system and other inputs)

#### Analog output

Number of analog outputs:	1 point
Analog output type:	Selectable between process value (PV), set value (SV), Manipulated output value (MV), and absolute value of " PV-SV "
Analog output:	0~10mV DC, Output resistance: 10 $\Omega$ 0~10V DC, Load current: 2mA max. 4~20 mA DC, Load resistance: 300 $\Omega$ max.
Output accuracy:	$\pm 0.3\%$ (of displayed value)
Output resolution:	Approx. 0.1%
Output updating cycle:	0.2 sec
Output scaling:	Within measuring range
Isolation:	Insulated between analog output and system and input (not insulated between analog output and control output I)

#### Set value bias

Setting range:	-2000~2000 unit
Setting resolution:	Same as display resolution
Isolation:	Insulated between set value bias input and output (not insulated between set value bias input and system and other inputs)

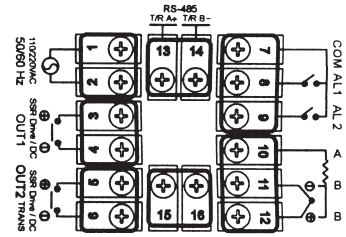
**Others**

Data storage:	By non-volatile memory (EEPROM)
Operating ambient temperature / humidity range:	-10~50°C / 90% RH maximum (no dew condensation)
Supply voltage:	100~240V AC $\pm$ 10% (50 / 60Hz),
Power consumption:	Max. 3.5VA (AC)
Insulation resistance:	Between input / output terminal and power supply terminal: 500V DC 4M $\Omega$ minimum
Dielectric strength:	1 min, at 2.3KV AC between input / output terminal and power supply terminals
Protective structure:	Only front panel has simple dust-proof and drip-proof structure.
Material:	ABS+PC
External dimensions:	MC-5438: H48 $\times$ W48 $\times$ D83mm MC-5538: H96 $\times$ W48 $\times$ D83mm MC-5638: H48 $\times$ W96 $\times$ D83mm MC-5738: H72 $\times$ W72 $\times$ D83mm MC-5838: H96 $\times$ W96 $\times$ D83mm
Panel output:	MC-5438: 46 $\times$ 46mm MC-5538: 46 $\times$ 91mm MC-5638: 91 $\times$ 46mm MC-5738: 68 $\times$ 68mm MC-5838: 91 $\times$ 91mm
Weight:	MC-5438: Approx. 170g, MC-5538: Approx. 240g, MC-5638: Approx. 240g, MC-5738: Approx. 260g, MC-5838: Approx. 330g


**MC 5438**  48\*48mm(DIN 1/6)

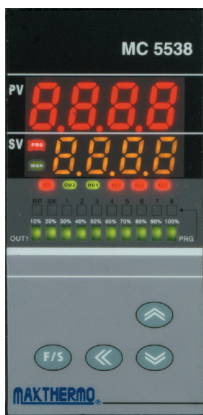


**CONNECTING DIAGRAM**

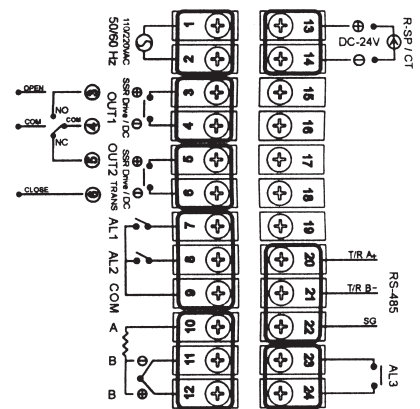


CUTOUT DIMENSION 46\*46mm


**MC 5538**  96\*48mm(DIN 1/8)

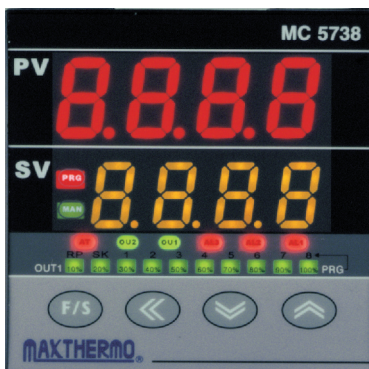


**CONNECTING DIAGRAM**

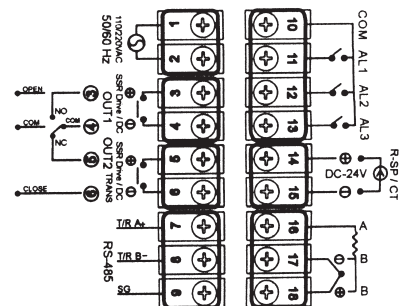


CUTOUT DIMENSION 46\*91mm

**MC 5738**  72\*72mm(DIN 1/6)



**CONNECTING DIAGRAM**



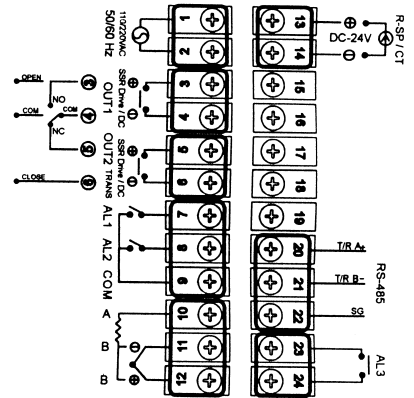
CUTOUT DIMENSION 68\*68mm

**MC 5638**

CE  
96\*48mm(DIN 1/8)



**CONNECTING DIAGRAM**



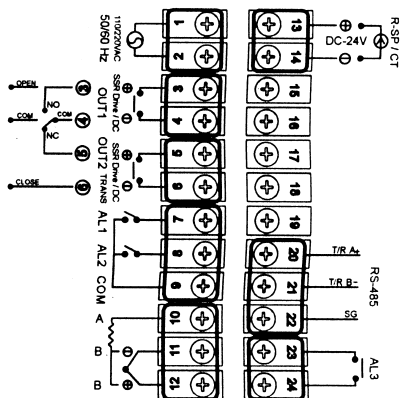
CUTOUT DIMENSION 91\*46mm

**MC 5838**

CE  
96\*96mm(DIN 1/4)



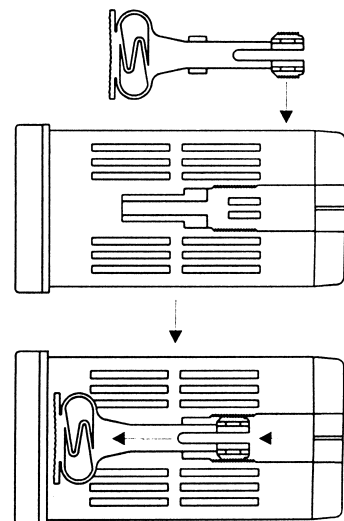
**CONNECTING DIAGRAM**



CUTOUT DIMENSION 91\*91mm

FUNCTIONS	MODEL			
	MC-5438	MC-5538 MC-5638	MC-5738	MC-5838
REMOTE SV		✓	✓	✓
HEATER BROKEN ALARM		✓	✓	✓
MOTOR VALVE		✓	✓	✓
SOFT START	✓	✓	✓	✓
DUAL OUTPUT	✓	✓	✓	✓
ALARM NUMBER	2	3	3	3
TRANSMISSION	✓	✓	✓	✓
PROGRAMMABLE	✓	✓	✓	✓
RS-485/RS-232	✓	✓	✓	✓

**How to Fix**





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