

Temperature Controllers

**From General-purpose Temperature Controllers
To Specialized Modules for
High-speed Industrial Networks Such As EtherCAT**

- Universal input for thermocouple, RTD, DC current/voltage and potentiometer
- Convenient PC software to facilitate the parameter tuning while checking trend graphs
- Auto-tuning function for automatic PID parameter setting

**Wall
Mounted**

**New
1/16 DIN size**

**Panel/Flush
Mounted**



Large 19.5-mm-high (.77") LED display for PV value (TC10EM) General-purpose temperature controller with highly legible displays

- Discrete inputs usable to switch PID bank or operation mode
- The TC10EM can provide for two control loops.
Remote SP function is available for single loop control setting.
- Control outputs configurable to MV, PV or alarm

Modbus, 96 × 96 mm panel size

TEMPERATURE CONTROLLER



IP65

Model **TC10EM**

- Two PID controllers in one package.
- Universal input × 2 points, control output × 4 points, discrete input × 2 points, clamp-on current sensor (Model: CLSE) input × 2 points
- IP65 protection for the front panel



Modbus

Modbus, 48 × 48 mm panel size

TEMPERATURE CONTROLLER



IP66

Model **TC10CM**

- One PID controller
- Universal input × 1 point, control output × 4 points, clamp-on current sensor (Model: CLSE) input × 1 point
- IP66 protection for the front panel



Modbus

Modbus, 48 × 96 mm panel size

TEMPERATURE CONTROLLER



IP65

Model **TC10NM**

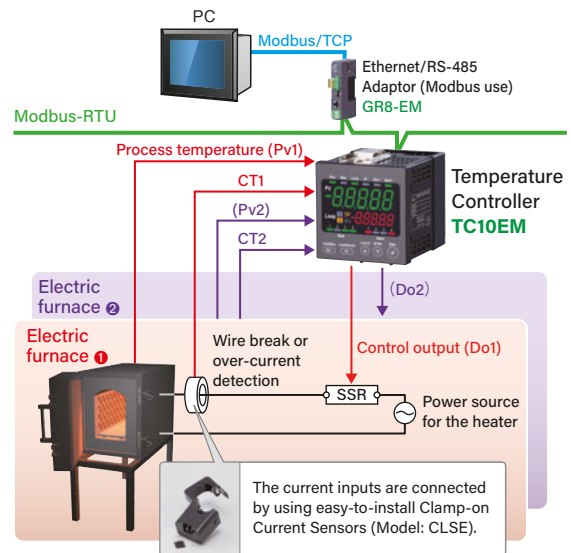
- One PID controller
- Universal input × 1 point, control output × 4 points, discrete input × 2 points, clamp-on current sensor (Model: CLSE) input × 1 point
- IP65 protection for the front panel



Modbus

New
1/16 DIN size

Two-loop ON/OFF control plus wire breakdown detection of heating furnace



Monitoring/control system can be easily built in combination with the R3 Series I/O modules

- Temperature control module installed inside a control panel
- Temperature control module handled as one of the R3 Series I/O modules

R3 Series Remote I/O

TEMPERATURE CONTROL MODULE

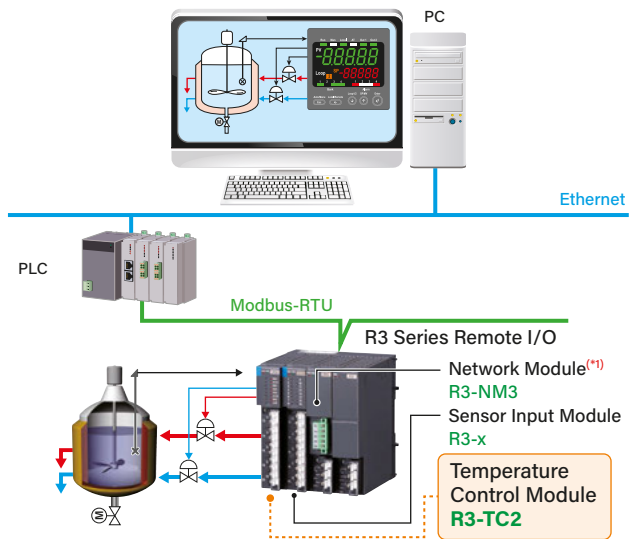
Model **R3-TC2**

- Two PID controllers in one package
- Universal input × 2 points, control output × 4 points, discrete input × 2 points, clamp-on current sensor (Model: CLSE) input × 2 points



Modbus

Monitoring system with built-in temperature controllers



(*) Only the R3-NM3 is compatible with Temperature Control Modules.

Direct control of temperature via high-speed industrial open network such as EtherCAT

- Temperature control module installed inside a control panel
- Communication data such as control parameters can be transmitted cyclically thanks to the high-speed capability of EtherCAT

R8 Series Remote I/O

TEMPERATURE CONTROL MODULE

Model **R8-TC2**

- Two PID controllers in one package
- Universal input × 2 points, control output × 2 points, clamp-on current sensor (Model: CLSE) input × 2 points
- Compatible to various open network protocols



EtherCAT

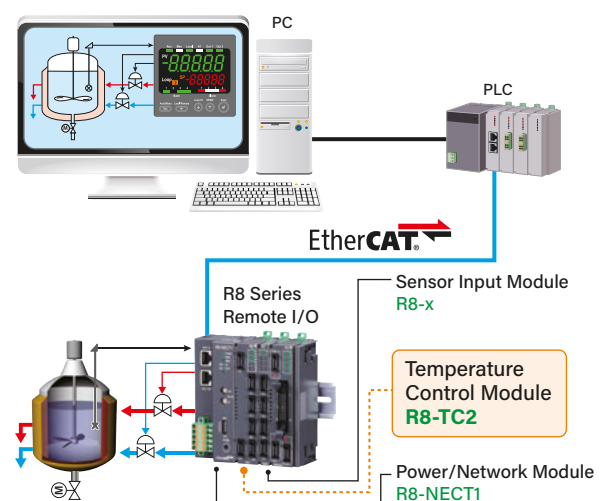
Modbus

DeviceNet

EtherNet/IP

CC-Link

Control system using EtherCAT



Main Specifications

TEMPERATURE CONTROLLER				TEMPERATURE CONTROL MODULE	
	4-digit LED display type  CE IP66	5-digit LED display type  CE IP65	5-digit LED display type  CE IP65		 CE
Model	TC10CM	TC10NM	TC10EM	R3-TC2	R8-TC2
GENERAL SPECIFICATIONS					
Number of control loops	One loop		Two loops		
Isolation	Pv1 to CT1 to Mv1 or Mv2 to Do1 or Do2 to Modbus to power	Pv1 to CT1 to Di1 or Di2 to Mv1 to Mv2 to Do1 or Do2 to Modbus to power	Pv1 to PV2 to CT1 to CT2 to Di1 or Di2 to Mv1 or Mv2 to Do1 or Do2 to Modbus to power	Pv1 to Pv2 to CT1 or CT2 to Di or Di2 to Mv1 or Mv2 to Do1 or Do2 to internal bus or internal power	Pv1 to Pv2 to Mv1 to Mv2 to exc. supply to CT1 or CT2 to internal bus or internal power
Control mode	Standard PID, heating and cooling control (ON/OFF, PID)				
Proportional band (P)	0.1 to 999.9 (temperature unit)	0.1 to 3200.0 (temperature unit)			
Integral time (I)	0 to 3999 sec.				
Derivative time (D)	0.0 to 999.9 sec.				
Auto-tuning method	Limit cycle method				
Alarm	Deviation high/low limit, absolute high/low limit, etc.				
Sampling cycle	100 msec.				
Control cycle	1.0 to 99.9 sec.				
Mv output range	-5 to +105 %				
INPUT SPECIFICATIONS					
●Universal input (Pv)					
DC current input	0 – 20 mA DC				
DC voltage input	-1000 to +1000 mV DC, -10 to +10 V DC				
Thermocouple	(PR), K (CA), E (CRC), J (IC), T (CC), B (RH), R, S, C (WRe 5-26), N, U, L, P (Platinel II)				
Potentiometer	0 to 4000 Ω				
Resistor	0 to 4000 Ω				
RTD (2-wire or 3-wire)	Pt 100 (JIS '97, IEC), Pt 500, Pt 1000, Pt 50 Ω, JPt 100 (JIS '89), Ni 508.4 Ω, CU 10 (25°C)				
●CT input	Clamp-on current sensor (Model: CLSE): 5 A, 50 A, 100 A, 200 A, 400 A, 600 A				
●Discrete Input (Di)	—	2 points			—
OUTPUT SPECIFICATIONS (Specify one output type when ordering)					
Control output (Mv, Do)	• 0 – 20 mA DC (2 points) + Open collector (2 points) • 0 – 10 V DC (2 points) + Open collector (2 points) • 12 V pulse (2 points) + Open collector (2 points)	• 0 – 20 mA DC (2 points) + Open collector (2 points) • 0 – 10 V DC (2 points) + Open collector (2 points) • 12 V pulse (2 points) + Open collector (2 points) • N.O. relay (2 points) + Open collector (2 points)	• 0 – 20 mA DC (2 points) + Auxiliary relay (2 points) • 0 – 10 V DC (2 points) + Auxiliary relay (2 points) • 12 V pulse (2 points) + Auxiliary relay (2 points) • N.O. relay (2 points) + Auxiliary relay (2 points)	• 0 – 20 mA DC (2 points) + Open collector (2 points) • 0 – 10 V DC (2 points) + Open collector (2 points) • 12 V pulse (2 points) + Open collector (2 points)	• 0 – 20 mA DC (2 points) • 0 – 10 V DC (2 points) • 12 V pulse (2 points)
INSTALLATION					
Operating temperature	-10 to +55°C (14 to 131°F)				
Operating humidity	30 to 90 %RH (non-condensing)	5 to 90 %RH (non-condensing)		30 to 90 %RH (non-condensing)	
Atmosphere	No corrosive gas or heavy dust				
Mounting	Panel flush mounting			Installation Base (Model: R3-BSx)	DIN rail
External dimensions	W48 × H48 × D100.5 mm (1.89" × 1.89" × 3.96")	W48 × H96 × D108 mm (1.89" × 3.8" × 4.25")	W96 × H96 × D108 mm (3.8" × 3.8" × 4.25")	W27.5 × H130 × D109 mm (1.08" × 5.12" × 4.29")	W24 × H115 × D59 mm (0.94" × 4.53" × 2.32")



Website



Request Info

Your local representative: