

6ch Temperature Control Board

Model : **TCB-335**

■ **Model**

Name: 6ch temperature control board
Model: TCB-335-6C/E

■ **Input specification**

Thermocouple: K (Ungrounded) 6-point
External resistance: 100Ω or less.

Rated scale

Input range	Resolution
0.0 to 500.0°C	0.1°C

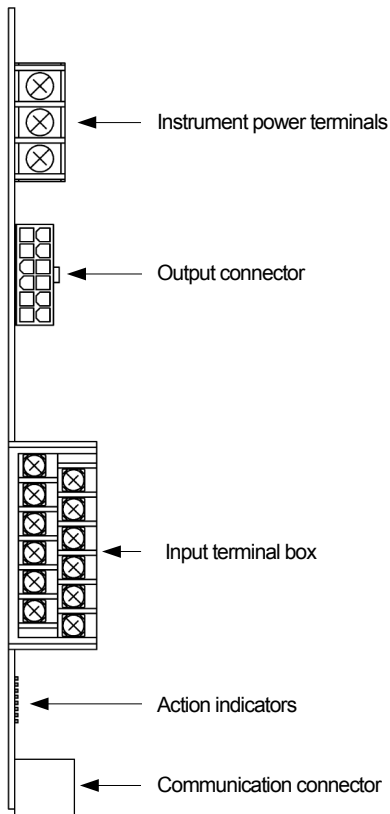
■ **Indicating structure**

Action Indicators

- Power indicator (PWR): Lights when power-on Green LED
- Communication indicator (TX/RX): Lights for TX output Yellow LED
- CH1 output indicator (OUT1): Lights when CH1 output is ON Green LED
- CH2 output indicator (OUT2): Lights when CH2 output is ON Green LED
- CH3 output indicator (OUT3): Lights when CH3 output is ON Green LED
- CH4 output indicator (OUT4): Lights when CH4 output is ON Green LED
- CH5 output indicator (OUT5): Lights when CH5 output is ON Green LED
- CH6 output indicator (OUT6): Lights when CH6 output is ON Green LED

■ **Installation specification**

- Power supply : 24V DC
- Allowable fluctuation range : ± 10% of supply voltage
- Current consumption : Max. 30mA
- Momentary power failure : Within 30ms
- Ambient temperature : 0 to 50°C (23 to 131°F)
- Ambient humidity : 35 to 85%RH (non-condensing)
- Mounting : Wall mounting
- External dimensions : W22.8 × H210 × D121.8 mm
- Weights : Approx. 150g



■ **Indication performance**

- Indicating accuracy : Within ±1.5°C at 25 ± 2°C
(Equivalent to ± 0.3% of full scale ±1 digit)
- Cold junction temperature compensation accuracy:
Within ± 2.0°C at 0 to 50°C ambient temperature
- Temperature coefficient : ± 20ppm/°C
- Input sampling period : 250ms

■ **Control performance**

- Setting accuracy: The same as the indicating accuracy
- Control action : PID action (with auto-tuning function), PI action, PD action (with Manual reset function), P action (with manual reset function), ON/OFF action
- Proportional band (P) : 0 to 500.0°C (ON/OFF action when set to 0.0) (Default: 10.0°C)
- Integral time (I) : 0 to 1000sec. (Off when set to 0) (Default: 200sec.)
- Derivative time (D) : 0 to 300sec. (Off when set to 0) (Default: 50sec.)
- Proportional cycle : 1 to 120sec. (Default value: 3sec.)
- ARW : 0 to 100% (Default value: 50%)
- ON/OFF action hysteresis: 0.1 to 100.0°C (Default value: 1.0°C)
- Control output : Open corrector output Max. 50mA (30V DC or less)
Residual voltage: 1V or less

■ **Temperature alarm**

- The alarm action point is set by the ± deviation from the SV, and when the input goes outside the alarm setting range, the status flag will be set.
 - High limit alarm: Setting range 0.0 to 500.0°C
Hysteresis 2.0°C (Fixed)
 - Low limit alarm: Setting range 0.0 to 500.0°C
Hysteresis 2.0°C (Fixed)

■ **Loop brake alarm**

- The status flag will be set in case of the following
 - PV does not rise as much as the span or more within the time it takes to assess the loop break alarm after the MV has reached 100%
 - PV does not fall as much as the span or more within the time it takes to assess the loop break alarm after the MV has reached 100%.
- Setting range: Loop break alarm time : 0 to 200 minutes
Loop break alarm span: 0.0 to 150.0°C

■ **Serial communication**

- Communication line: RS-485
- Communication method : Half-duplex communication
- Synchronization method : Start-stop synchronization
- Communication speed : 19200bps
- Data format : Start bit : 1
Data bit: 7
Parity : Even
Stop bit : 1
- Instrument number : 0 (zero) fixed

■ **Attached functions**

- Control Allowed/Prohibited, Automatic cold junction temperature Compensation, Burnout (Overscale), Underscale, Power failure Countermeasure, Reception timeout processing, Self-diagnosis

■ Terminal and connector arrangement

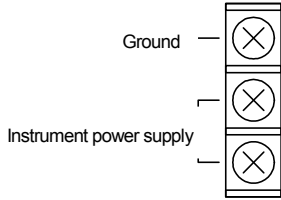
Instrument power terminal:

OTB-761-BL 3P (Made by OSADA CO., LTD.)

Terminal screw : M4×8L

Solderless terminal : Terminal with an insulation sleeve
in which an M4 screw fits
Terminal width: 8mm or less

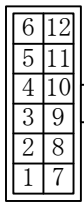
Tightening torque : 1.2N·m



Output connector CH1 to CH6:

39-29-1128 (5569-12A1) (Made by MOLEX CO., LTD)

Housing: 39-01-2120 (5557-12R)



6: Ch1 (-)	12: Ch1 (+)
5: Ch2 (-)	11: Ch2 (+)
4: Ch3 (-)	10: Ch3 (+)
3: Ch4 (-)	9: Ch4 (+)
2: Ch5 (-)	8: Ch5 (+)
1: Ch6 (-)	7: Ch6 (+)

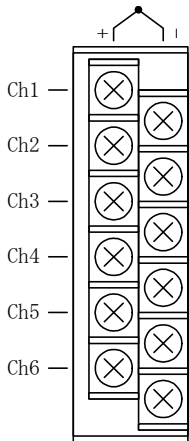
Input terminal block:

ML-740- W1RF-12P (Made by SATO PARTS)

Terminal screw : M3×7L

Solderless terminal : Terminal with an insulation sleeve
in which an M3 screw fits
Terminal width: 6.2mm or less

Tightening torque : 0.5N·m



RS-485 communication connector:

RJ-11: 6-terminal, 2 pieces (Pins of the same number are connected internally)

Connector: Modular plug based on RJ-11

