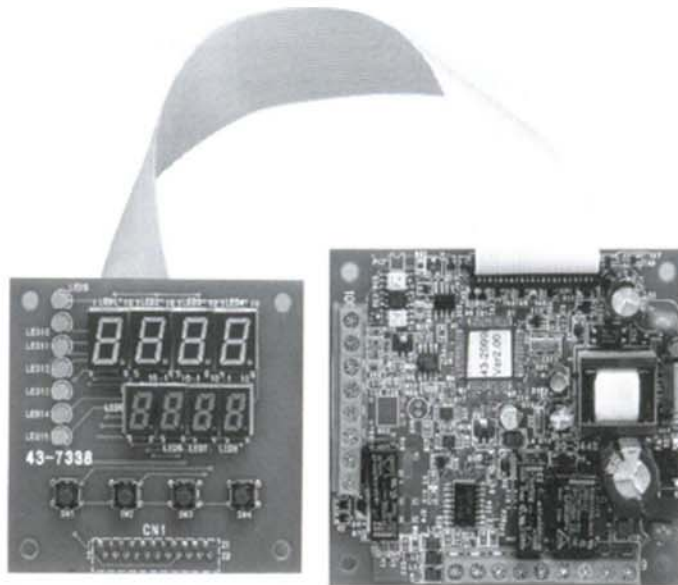


DIGITAL BOARD TYPE CONTROLLER

TTM Series

TTM-00B



TTM-00B

- Digital Board Type Temperature Controller with functions of TTM-004 (Timer function is equipped)
- Feasible to use with wide application range, due to versatile specifications and options

Standard Specifications

Input(Multi Input) Change by key S/W	Thermocouple	K, J, R, T, N, S, B, (JIS 1602-1995)	
	R.T.D.	Pt100 ,Pt100 (output resistance 10Ω or less)	
Control Method	PID(Type A, Type B) Auto-Tuning Self-Tuning	Proportional band (P1)	0.1-200.0% of setting limiter span
		Proportional band of OUT2 (P2)	0.10-10.00 times (Magnification to P1)
		Integral time (I)	1-3600sec (0: OFF)
		Derivative time (D)	1-3600sec (0: OFF)
		Proportional cycle (T1, T2)	1-120sec
		Dead band (DB)	-100.0 - +100.0 or -100 - +100 (°C)
	ON/OFF	Control sensitivity (C1, C2)	0-999 or 0.0-999.9(°C)
	OFF point of OUT 1&2	Position of setting	-199-999 or -199.9-999.9(°C)
Control Output	Relay Contact	250VAC, 4A(Load resistance) 1a contact	
	SSR Drive Voltage	0-12VDC (Load resistance: 600Ω or more)	
	Current	4-20mA DC (Load resistance: 600Ω or less)	
Setting and Indication Accuracy	Thermocouple	±(0.3% + 1 digit) of process value or ±2°C, either of bigger numerical values is taken. (Ambient temperature: 23°C±10°C) -100 - 0°C: ±3°C, -200 -100°C: ±4°C Thermocouple B under 400°C is not regulated.	
	R.T.D.	±(0.3% + 1 digit) of setting value or ±0.9°C, either of bigger numerical values is taken. (Ambient temperature: 23°C±10°C) Ambient temperature 0-50°C: ±(0.5% + 1 digit) or 1.5°C, either of bigger numerical values is taken.	
Voltage Source		100VAC-240VAC (50/60Hz)	
Board Size	Control board	W85×D75×H14 mm	
	Display board	W70×D65×H10 mm	
Operating Condition		0-50°C, 20-90%RH (under non-condensation)	
Storage Condition		-25-70°C, 5-95%RH (under non-freezing and non-condensation)	

* Please refer to the catalogue of TTM-000 series about detailed specifications and functions.

Options

Event Output 1 (AL1) Event Output 2 (AL2 or Out2)	Function: PV contact output (8 modes), Special function (3 modes), Additional function (3 modes) Setting Range: -199.9-999.9 or -1999-9999 (°C) Sensitivity: 0.0-999.9 or 0-9999 (°C) Rating: 250VAC 2.4A(Load resistance) 1a contact When selecting output 2 at contact output 2, the output generates on cooling side during heating/cooling. Contact polarity is selectable, either normal open or normal close.
DI	Function: SV/SV2 switchable (OFF: SV2), Auto/Manual switchable (OFF: Manual), Run/Ready switchable (OFF: Ready), Normal/Reverse switchable (OFF: Normal), Normal (SV2)/Reverse (SV2) switchable (OFF: Normal SV2), Timer Start/Reset (OFF: Counting) Input Specifications: Minimum input time: 500ms, OFF voltage: 6VDC max, ON current: 6mA max, Permissible resistance value between contacts ON: 333Ω max, OFF: 500kΩ min.
CT Input	Setting Range 1-30A/AC, Accuracy: 5% (setting resolution 1A)
Heating & Cooling	See "Control Output" in standard specifications.
Communication	RS-485 conformable: Multi-Drop 2 line system. 1: 31 stations max. Protocol: TOHO protocol Communication parameter: BBC check/Non-BBC check, 7bits/8bits. Non-parity/odd number/even number, stop-bit 1/2. Communication Speed: 1200/2400/4800/9600/19200 BPS Communication Address: 1-99 Response Delay Time: 0-250m sec.

- Possible to produce the setting portion as OEM.
- Due to the board type controller, installation into short depth and low space is more effective.
- A display panel can be used in accordance with requested design.

Model Configurations

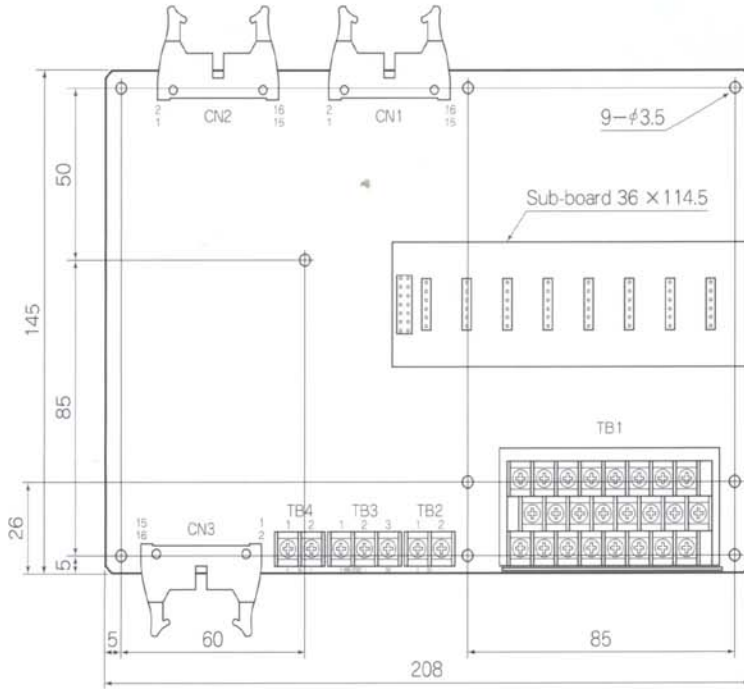
TTM-00B - ① - ②

①Output 1	R : Relay Contact Output, P: SSR Drive Voltage Output, I: Current Output
②Option	A : EV1, B: EV2, D: CT, E: DI, M: RS-485, P: SSR Drive Voltage Output

- EV2 is not available when EV1 is selected.
- B & P both are not available in one model.
- D is not available when A is not selected.
- D is not available when I is not chosen for output 1.

Installation

TTM-00BT Dimensions



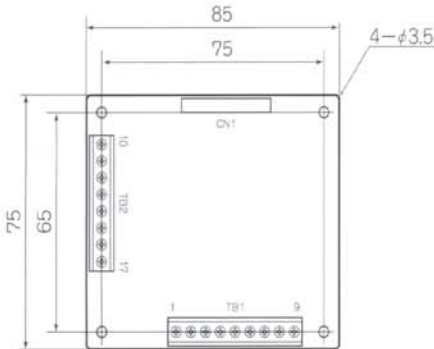
Installation Method

- Install 9 places (φ3.5) by screws (M3).
- Horizontal installation or vertical installation with input terminals facing below are appropriate.
- Keep space of the board more than 5mm by spacer etc.
- Take interval 50mm distance in case of consecutive installation.

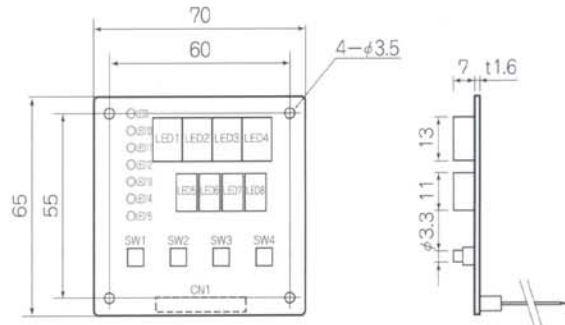
Wiring Method

TB1	Temperature Input
TB2	Power Supply
TB3	Communication
TB4	Voltage Input
CN1	Control Output
CN2	Event Output
CN3	CT Input

TTM-00B Control Board Dimension



TTM-00B Display Board Dimension



- Please request the product specification when you need to know size of each LED and SW.