TB SERIES 4 DIGITAL PID Controller

■ FEATURE

- **Measuring T/C, Pt100Ω, Process signal mA, Vdc**
- **Accuracy: ±0.25% of full scale**
- **4 Digital display: -1999~9999**
- **Automatic / manual output in standard**
- **Heating / Cooling control output available in option**
- **Analog re-transmission function option**
- **Outside dimensions is 1/4, 1/8, 1/16 DIN**
- **High stability & low cost**

■ SPECIFICATIONS

Measuring Range		Resolution	Input Impedance
Thermo-couple	K	0.0~400.0°C/ 0~1200°C	≥1M ohm
	J	0.0~400.0°C / 0~1200°C	≥1M ohm
	E	0~1000°C	≥1M ohm
	T	-199.9~400.0°C / 0.0~350.0°C	≥1M ohm
	R	0~1796°C	≥1M ohm
	S	0~1796°C	≥1M ohm
	B	0~1820°C	≥1M ohm
	N	0~1300°C	≥1M ohm
	W	0~2320°C	≥1M ohm
	PLⅡ	0~1390°C	≥1M ohm
	U	-199.9~400.0°C / 0.0~400.0°C	≥1M ohm
	L	0~800°C	≥1M ohm
Pt100Ω		-199.9~600.0°C / 0~600°C	≥1M ohm
Current		0~20 mA	2.4 ohm
		4~20 mA	2.4 ohm
Voltage		0~50 mV	≥1M ohm
		0~10 V	≥20K ohm
		1~5 V	≥10K ohm

Measuring accuracy: ± 0.25% F.S. ± 1 digit
Scaling: -1999~9999; 14 bit resolution
Sampling time: About 2 cycles/sec.

Display functions

LED: Dual display for PV & SV
8 square LED for status of output, alarm…
10 segments bar display for output percentage
Decimal point: Settable any digit by front key (linear input)
Unit: °C and °F changeable
Compensation: For PV and SV
Over-range indication: " **UUU1** " display

Operating

Operation key: Five key for Function setting / Auto-Manual output
Up key / Down key / Shift key
Skip function: Skip the functions showing what the customer don't use.

Control mode

ON/OFF control when P sets to be 0(P=0),
Hysteresis (Hy): 0~1000 counts
PID control Auto tuning
Proportional Band (P): 0.0~200.0% of span
Cooling side Proportional Band (P1):
0.0~200.0% of span
Reset time (Integral): 0~900 sec.
Rate time (Deviation): 0~1000 sec.
Cycle time: 0~150 sec.
H/C dual control output
Direct/Reverse programmable
Control output: Relay SPDT x 1, 5A/240Vac
SSR, 24V, 20mA
4~20 mA, Load: 600Ω
0~10 V, Load: 1MΩ

Alarm

Relay contact: Standard: Alarm 1: SPDT 5A/240V
Option: Alarm 2: SPDT 3A/240V
Alarm functions: Wait, Hysteresis, Alarm time, Alarm delay, Alarm hold,
Alarm mode: 13 action modes programmable
Deviation High, Low or High & Low alarm,
Absolute value High, Low or High & Low
Absolute value high & low range
A/D error, Heater break

Analogue output (option)

Accuracy: ± 0.25% of RO
Output capability: Max. load resistance : 600 ohms
Isolation: Isolation between input and output
Calibration: By front key

Power

Excitation Supply: DC 24V, 30mA
Power Supply: AC 85~265V, 50/60 Hz,
Option: DC 22~50V or DC 12V,±10%
Power consumption: 4.5VA
Back up memory: By EEPROM

Environmental

Operating temperature: 0~55 °C
Operating relative humidity: 20~90%RH(Non-condense)
Temperature coefficient: ≤100 PPM/°C (0~50°C)
≤50 PPM/°C (23 ± 3°C)
Storage temperature: -10~70 °C
Enclosure: IP 42

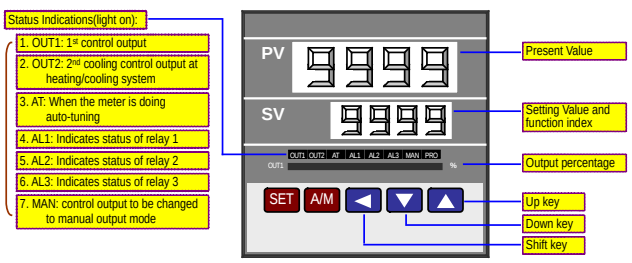
Electrical safety

Dielectric Strength: AC 2.0KV for 1 min
Between Input / Output / Power / Case
Insulation: ≥20M ohm
LVD: EN61010-1
EMC: EN 55022; EN50204
EN61000-3-2; EN61000-4-2

Mechanical

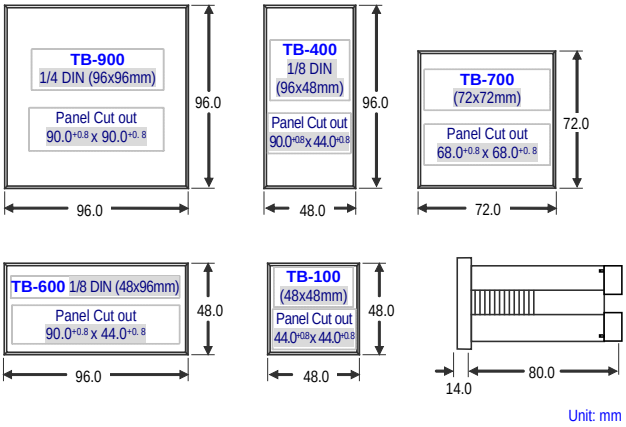
Case material: Black ABS fire-protection
Mounting: Panel flush mounting
Connection: Screw terminal
Weight: About 325g

■ FRONT PANEL



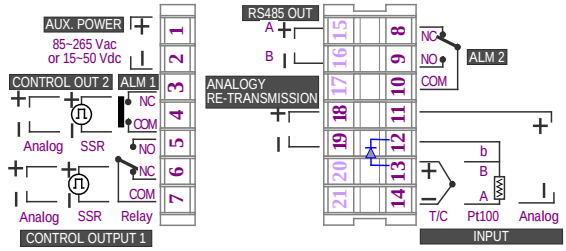
TB SERIES

■ DIMENSIONS

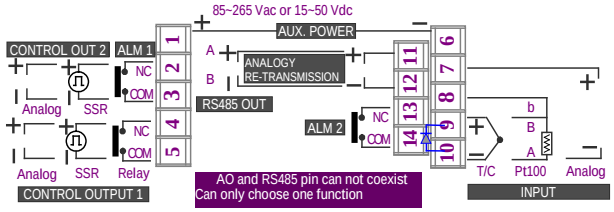


Unit: mm

TB-700 (72x72mm):

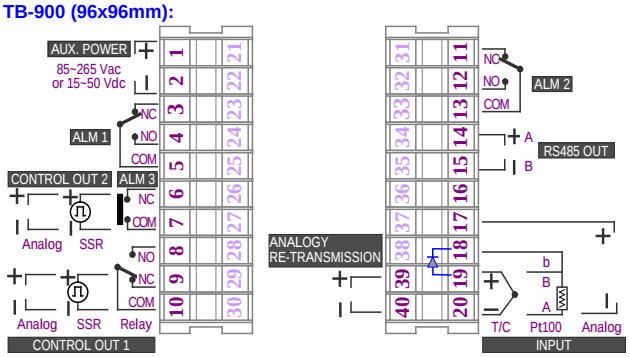


TB-100 (48x48mm):

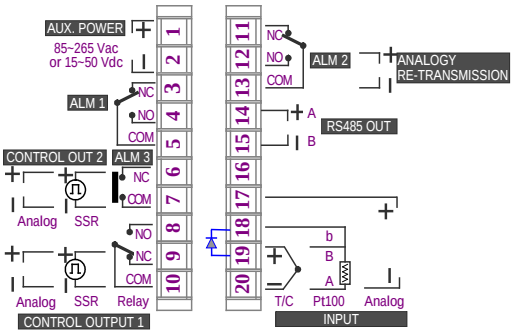


■ CONNECTION DIAGRAM

TB-900 (96x96mm):



TB-400 (48x96mm) and TB-600 (96x48mm):



■ ORDERING INFORMATION

TB- Dimension — Control Output 1 — Control Output 2 — Alarm Output — Analogue Output — 0 — 0 — Aux. Power — RS485 Communication

CODE	DIMENSION
900	96x96mm
700	72x72mm
600	96x48mm(V)
400	48x96mm(H)
100	48x48mm

CODE	CONTOL O/P 1
0	None
1	Relay
2	Volt (for SSR)
3	4 ~ 20 mA

CODE	CONTOL O/P 2
0	None
1	Relay
2	Volt (for SSR)
3	4 ~ 20 mA

CODE	ALARM O/P
0	None
1	1 Relay
2	2 Relay
3	3 Relay

CODE	ANALOG O/P
0	None
1	4 ~ 20 mA
2	0 ~ 20 mA

CODE	AUX. POWER
A	AC 86~264V
D	DC 22~50V
D12	DC 12V,±10%

CODE	Communication
485	RS485 Comm.

TB-100 Type,The AO and RS485 pin can not coexist