

DIGITAL TEMPERATURE CONTROLLER

TOHO TTM 300 SERIES

Features

- Built in fuzzy logic function
- Blind Function
- Communication function of DIN 1/16 size
- Diversified contact outputs
- Easy to read 4 - digit display



Standard Specifications

| | | | |
|----------------|--|--|------------------------|
| Input | Thermocouple | K,J,T,R,N,B Input resistance : 1M Ω or more, influence of external resistance : approx. 0.2 μ v/ Ω | |
| Indication | R.T.D. | Pt100, JPt100 (Load resistance : 5 Ω or less) | |
| | PV (Process value) | 4 digits, 7 segments, LED, green 10mm high, 15mm high (TTM-309) | |
| | SV (Setting value) | 4 digits, 7 segments, LED, green 8mm high | |
| | Functions | LED : Red (RUN - OUPTUT), LED : Green (UP - DOWN) | |
| Control Method | PID | Proportional band (P) | 0.1 to 200.0% |
| | PID Fuzzy (Auto Tuning) | Reset time (integral) (I) | 0 to 3600 sec (O:OFF) |
| | | Rate time (Deviation) (D) | 0 to 3600 sec (O:OFF) |
| | | Cycle time (T) | 1 to 120 sec |
| | ON / OFF | Control Sensitivity (C) | 0 to 999.9 or 0 to 999 |
| | Relay contact | 250VAC, 3A (Load resistance) 1 c contact | |
| | SSR drive voltage | 0 to 12VDC (Load resistance: 500 Ω or less) | |
| | Voltage | 1 to 5V, 0 to 10 VDC (Load resistance:1K Ω or more) | |
| Current | 4 to 20mA/DC (Load resistance: 600 Ω or less) | | |



DIGITAL PROMOTERS
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| | | |
|---------------------------------|---|--|
| Sampling Time | | 0.5 sec (Output change period is the same.) |
| Setting and Indication Accuracy | Thermocouple | \pm (0.3% + 1 digit) of setting value or $\pm 3^{\circ}\text{C}$ (6°F), whichever is the greater. (B thermocouple: 309°C (750°F) or more.) |
| | R.T.D. | \pm (0.3% + 1 digit) of setting value or $\pm 0.9^{\circ}\text{C}$ (1.8°F), whichever is the greater. |
| Memory Element | | FARM |
| Source Voltage | | 85 to 264 VAC (Free power source), 24V \pm 10% AC/DC (Made to order) |
| Weight | | TTM-304 Less than 170g, TTM-305 Less than 230g, TTM-309 Less than 300g. |
| Power Consumption | | TTM-304 Less than 11VA(264 VAC) / Less than 7VA(24V AC)/ Less than 5W (24 VDC) |
| | | TTM-305 Less than 12VA(264 VAC) / Less than 8VA(24 VAC)/ Less than 5W (24 VDC) |
| | | TTM-309 Less than 12VA(264 VAC) / Less than 8VA(24 VAC)/ Less than 5W (24 VDC) |
| Accessories | | Instruction manual, attachment for installation and unit seal. (Fittings for installation, expect TTM-304). |
| Operating Condition | | 0 to 55°C , 35 to 85% RH (No condensation) |
| Storage Condition | | -20 to 85°C , 35 to 85% RH (No condensation) |
| Functions | Manipulated variable limiter (MLL/ MLH) | -10.0 to 110% (Relay, SSR drive voltage output: 0.0 to 100.0%) |
| | Switching of control mode (CNT) | PID fuzzy \leftrightarrow PID \leftrightarrow ON/OFF. Normal \leftrightarrow Reverse (In case of heat / cool, it is fixed.) |
| | PV correction (PVS) | -1999.9 to 999.9 or -199 to 999 ($^{\circ}\text{C}$ or $^{\circ}\text{F}$) |
| | Blind function | It is possible not to display any screen as desired by operation of key. |
| | PV/ SV Start | Be able to change in PV/SV start and setting time of PV/SV start. |
| | Shift of decimal point (DP) | Be able change to display of under decimal position without thermocouple input. |
| | Input switch able | Be able to change in thermocouple and in R.T.D. not to change to R.T.D. from T/C and it reserve. |
| | Key lock (LOC) | 4 modes (No lock; all parameters, temperature and time parameter, setting modes of pattern No. and parameter each pattern.) |
| | Watch dog function | Data checked by FRAM (Err0, A/D converter check (Err1), and auto tuning Check (Err2). Built -in-watch dog timer. |
| | Programmed operation | Number of steps X Number if patterns =64 max. (Can be programmed up to number of steps and patterns.) |
| Setting of step time | 0 to 99 hrs 59 mins (Step time can be set in increment of 1 min.) | |



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