

Single-Loop Electronic Temperature/Process Controllers

Bulletin 900-TC

Alarm and on/off manipulated variable status displays ensure that operators are kept aware of vital process conditions

All Bulletin 900s have an on-board wiring label, simplifying installation

Integrated 4 function keys allow "on-board" configuration

Two¹-high visibility LED displays for set-point and process value/variable indication



The Bulletin 900 family of single-loop temperature/process controllers provide cost effective, easy to configure solutions to PID or on/off process control applications. Controller configuration is typically achieved using the front panel tactile feedback keys and 11-segment² LED displays. The controllers can interface to a variety of process transmitters that have analog² signal (e.g. 4 to 20 mA, etc.) capability, such as Bulletin 1414 temperature, flow, transmitters, etc. Direct connection to temperature sensors such as thermocouples or Resistance Temperature Detectors (RTDs) is also standard for all controllers. The 900-TC8 and -TC16 offer analog (e.g. 4 to 20 or 0 to 20 mA) output capability for more precise process control and manual control of the PID output helps makes startup and process troubleshooting easy. All controllers also offer on/off control outputs such as an

electromechanical relay or a voltage output to drive a solid-state relay, and with time-proportioning PID even an on/off output can provide tight process control.

Flexibility Saves Panel Space

These single-loop controllers are available in three form factors: 1/32, 1/16, and 1/8 DIN, offering the flexibility to choose the best size controller for temperature or process applications without compromising on functionality or power. They are NEMA type 4X, UL/CSA/CE approved.

Easy PID Auto Tuning Improves Efficiency

The PID control mode along with analog or on/off outputs greatly reduce or eliminate process swings, helps stabilize workload, improve control efficiency, increase

component life and reduce energy costs. Using the PID control method with, auto-tuning allows for fast startup of the process application with little operator knowledge of the system's characteristics.

Network Communications

Thirty-two 900-TC controllers can be networked using cost effective, 2-wire, RS-485 hardware. All controllers support the 900-TC protocol for communications with a personal computer using 900Builder™ Lite configuration software or RSView® HMI software. For communications with a wide range of process devices including many A-B PLCs, drives and HMI, ModBus® RTU slave protocol is supported in the 900-TC8 and 900-TC16 lines.

¹ 900-TC8 has a 3rd LED display for MV indication.

² Doesn't apply to 900-TC32 line.

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Bulletin 900-TCx Quick Selection

| Item | | Bulletin No. | | |
|---|---|--|-----------------------------------|------------------------------------|
| | | 900-TC8 (Series B) | 900-TC16 (Series B) | 900-TC32 |
| Dimensions | | 48 mm (W) x 96 mm (H) x 78 mm (D) | 48 mm (W) x 48 mm (H) x 78 mm (D) | 48 mm (W) x 24 mm (H) x 100 mm (D) |
| Sample Rate | | 250 ms | | 500 ms |
| Indication Accuracy | | Thermocouple $\pm 0.3\%$ RTD $\pm 0.2\%$ Analog $\pm 0.2\%$ | | $\pm 0.5\%$ PV + 1 digit |
| Heating/Cooling Control Mode | | Yes | Yes | Yes |
| Scaling to Engineering Units | | Yes | Yes | Yes |
| Control Method | | PID, (auto-tune and self-tune) ON/OFF or ON/OFF Timed Proportional PID (auto-tune and self-tune) | | |
| Inputs | Thermocouple Input and 0...50 mV DC | Yes | Yes | Yes |
| | 100 Ω Platinum Resistance Temperature Sensor (RTD) | Yes | Yes | Yes |
| | Analog Input and 0...20 mA, 4...20 mA, 1...5V DC, 0...5V DC, 0...10V DC | Yes | Yes | No |
| | Non-Contact Temperature Sensor | Yes | Yes | Yes |
| Control Output 1 Type | ON/OFF Relay Output (Electro-Mechanical) | Yes | Yes | Yes |
| | ON/OFF Voltage Output for Solid-State Relay | Yes | Yes | Yes |
| | ON/OFF Triac (AC Only) | No | Yes | No |
| | 4...20 and 0...20 mA (DC) Analog | Yes | Yes | No |
| Control Output 2 Types | ON/OFF Relay | No * | No * | No * |
| | ON/OFF Triac (AC Only) | Yes ➤ | No | No |
| | ON/OFF Voltage SSR | Yes ➤ | Yes ‡ | No |
| Maximum Number of Alarms | None | No | No | Yes† |
| | 1 Point | No | No | Yes |
| | 2 Points | No | Yes | No |
| | 3 Points | Yes | Yes ‡ | No |
| RS-232C Communications Function | | Yes ❖ | No | No |
| RS-485 Communications Function | | Yes ❖ | Yes ❖ | Yes |
| ModBus Communications Protocol | | Yes | Yes | No |
| Event Input | | Yes ❖ | Yes ❖ | No |
| Run/Stop via Keypad or Interrupts | | Yes | Yes | Keypad |
| Multiple SP Selection via Keypad or Interrupts | | Yes | Yes | Keypad |
| Manual Output Control via Keypad | | Yes | Yes | No |
| Transfer Output Function (Requires Analog Output) | | Yes | Yes | No |
| Heater Burnout and Heater Short Alarm (Single or 3-Phase) | | Yes | Yes | No |

† When RS-485 communication is required.

‡ Requires an option unit with an SSR Output. For details refer to the Selection Guide 900-SG001_EN-P.

❖ Requires an option unit. For details refer to the Selection Guide 900-SG001_EN-P.

➤ Determined by controller catalog number.

* One of the controller alarm relays can be used for a second control output (e.g. heating and cooling application).

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