

- 5 standard DIN front panel sizes
- Two 4-digit displays plus bar graph
- Universal programmable inputs
- Optional remote set-point input
- PID-fuzzy auto-tuning with bumpless Auto/Manual
- Up to 4 relays and analog control output
- Retransmission analog output available
- Triple isolation
- RAMP/SOAK function
- 2-program-with-up-to-8-point pattern set point
- Pulse mode switching power supply
- Serial interface available

#### DESCRIPTION

BTC1800 is a microprocessor-based controller with universal input, analog output, and up to 4 relays (control or alarm) that may be controlled through a number of algorithms such as ON/OFF, ON/OFF heating/cooling duplex, motor-valve control, PID, and self-tuning PID. A bumpless auto-manual change-over is built in the PID algorithm. A start-on timer allows one of output relays to be time-controlled. Two displays (for the measured value and for the set point) as well as an output-control bargraph ease operator duties. Carefully protected from electromagnetic disturbances by featuring both input and output optical isolation, BTC1800 is well equipped for troublefree operation in harsh industrial conditions. and PID-autotune control algorithm.

#### TECHNICAL SPECIFICATIONS

**Construction** : Panel design to standard DIN (5 front sizes)  
**Wiring** : Screw terminals  
**Housing** : Plastic  
**Isolation** : Input to output to supply (3-way 1500V)  
**Indication** : 2 x LED 4-digit height 8 or 14mm (PV)  
 8 or 10mm (SV) and bar graph 10 point yellow

#### MAIN INPUT

**Thermocouple R,S** : 0-1769 °C  
**K,J** : 0-400,0, 0-1200 °C  
**B** : 0-1820 °C  
**E** : 0-1000 °C  
**L** : 0-800 °C  
**N** : 0-1300 °C  
**T** : -199,9-400 °C  
**U** : -199,9-600 °C  
**D** : -199,9-600 °C

**Pt-100 3-wire** : -199,9 – 600 °C JIS or DIN  
**Voltage** : -10 – 50mV other voltage using extern resistor  
**Current** : 0-20, 4-20mA  
**Indication** : -1999 till +9999  
**Scaling** : -1999 to +9999  
**Decimal point** : Programmable  
**Digital filter** : Programmable  
**Input** : Programmable

#### AUXILIARY INPUT (Option)

**Current** : 0-20, 4-20mA  
**Function** : Remote setpoint

#### CONTROL OUTPUTS (Up to 2 outputs)

**Relay** : 250VAC 3A, NO/NC or NO contact  
**SSR** : 250VAC 1A  
**MOS gate** : 60V/100mA Isolated  
**Extern SSR** : 24VDC/20mA  
**Analog** : 0(4)...20 mA ( $\leq 600 \Omega$ ), 0...10 V ( $\geq 1 M\Omega$ )  
**Isolation** : Optical, 1500 VAC  
**Operating modes** : Manual and automatic  
**Control algorithms** : ON/OFF and PID-fuzzy, programmable  
**Auto-tuning** : Programmable  
**Auto/Manual control** : Bumpless, keyboard switched  
**Pattern set point** : 1(2) programs w/ 16(8) points

#### ALARM OUTPUTS (Up to 2 outputs)

**Relay** : 250VAC 3A, NO/NC contact  
**SSR** : 250VAC 1A  
**MOS gate** : 60V/100mA Isolated  
**Extern SSR** : 24VDC/20mA

#### RETRANSMISSION OUTPUTS (Option)

**Analog** : 0(4)...20 mA ( $\leq 600 \Omega$ ), 0...10 V ( $\geq 1 M\Omega$ )  
**Function** : PV or SV transmission  
**Isolation** : Optical, 1500 VAC



#### SERIAL INTERFACE

**Interface type** : RS232 or RS485  
**Function** : configuration and networking  
**Network devices** : up to 31  
**Isolation** : 1500 VAC  
**Protocol** : MODEBUS ASCII or RTU

#### INSTALLATION

**Supply** : 85 to 265VAC  
**Ambient temp** : 0 to +50°C, RH 0 till 85%  
**Storage temp** : -20 to +65°C  
**Mounting** : Panel with bracket or DIN-rail  
**Protection class** : IP56 or IP65 front, IP20 rear  
**Dimension** : B96 x H96 x D81mm (type B)  
 B96 x H48 x D81mm (type H)  
 B48 x H96 x D81mm (type V)  
 B72 x H72 x D81mm (type Q)  
 B48 x H48 x D81mm (type S) (Panel/Rail)  
**Weight** : 300g type B, 225g type H,V,Q, 150g type S

#### PERFORMANCE

**Accuracy error** :  $< \pm 0.1\%$  FS  
**Sample time** : 250mS  
**Display** : 2 x 4-digit LED, PV red SV green  
**Bargraph Display** : 10-point LED for 1 control output, 0-100%  
**LEDs** : 8 (6 for 'S') control LEDs  
**Keyboard** : 5 (4 for 'S') membrane keys  
**Power consumption** : 4 VA  
**Cold junction comp** : Automatic software  
**RTD line comp** : Automatic software  
**Isolation** : Input to output to supply (3-way) 1500V



#### ORDER INFORMATION

**BTC1800**  
**CASE**: B 96x96, H 96x48, V48x96, Q72x72, S - 48x48 mm

**RELAY control output**: X None, C Relay NO/NC, D SSR, J External SSR, M MOS gate

**RELAY alarm output**: X None, C Relay NO/NC, D SSR, J External SSR, M MOS gate

**CONTROL algorithm**: F PID-fuzzy (ON/OFF), H PID-fuzzy plus pattern control

**SERIAL interface**: X None, A RS232, B RS485

**PROTOCOL**: M MODEBUS (ASCII), N MODEBUS (RTU)

**ANALOG control output**: X None, E 0...20 mA, F 4...20 mA, K 0...10 V

**AUXILIARY input**: X None, E 0...20 mA, F 4...20 mA

**ANALOG retransmission output**: X None, E 0...20 mA, F 4...20 mA, K 0...10 V

**INCREASED front protection**: X None, P IP65 front protection

Ex: BTC1800-B-C-C-F-B-N-F-F-F-P



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**UNIVERSAL PROGRAMMABLE CONTROLLER BTC1800**

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