

BAS-4022T

Dual Loop PID Controller



CE FCC

Features

- 2 loop PID control algorithms built in one package
- 2 Analog Input/1 Analog Output/1 Digital Input/1 Digital Alarm Output for 1 PID loop
- Analog Input Signal : 4 ~ 20 mA, 0 ~ 10 V_{DC}, 3 k & 10 k Thermistor
- Analog Output Signal : 0 ~ 10 V_{DC}, 0 ~ 20 mA, 4 ~ 20 mA
- Heating/Cooling (Direct/Reverse) Action Mode
- Loop Open/Close (PID Disable/Enable) and Analog Output Manual Control Modes
- 512 KB Prog. Memory
- First Order Filter
- System Emergency Shutdown
- Modbus/RTU Protocol Support

Introduction

Temperature PID controllers have been widely used in HVAC systems in building automation. Advantech offers the compact dual loop controller BAS-4022T. In addition to dual-loop design for economic reasons, BAS-4022T can be applied to various signals in the field such as: 4-20 mA, 0-10 V_{DC}, 3k and 10k thermistor. BAS-4022T also supports the Modbus/RTU protocol. HMI software can be used to easily access the module to monitor I/O data and change the control parameters through a Modbus interface, Modbus driver or Modbus OPC server.

Built-in PID Loop Control Algorithms

BAS-4022T has been built with 2 PID control loops. There are two analog inputs, one analog output, one digital input and one digital output for I/O control parameters for each loop. For the two analog input signals, AI#1 is for Pv1, and AI#2 is for Pv2. The analog output signal is for the Mv output value. Digital input can be used for the emergency shutdown input signal. It could remotely stop the PID loop action if there is an emergency situation. One digital output is then designed to be an alarm output if the analog input/output signal value is over its limit and action is required.

Built-in Watchdog Timer

The programmable watchdog timer is designed to automatically reset the CPU if the system fails.

Specifications

General

- **Certifications** CE, FCC Class A
- **Channels** Loop PID controller: 2
Analog input : 4
Analog output : 2
Digital input : 2
Digital output : 2
- **Dimensions (WxHxD)** 70 x 112 x 25 mm
- **Power Consumption** 2 W/Typical, 3 W/Max
- **Power Input** Unregulated +10 ~ +30 V_{DC}
- **Mounting** DIN 35 rail, stack, wall
- **Watchdog Timer** Yes (Programmable)

Input/Output Channels

- **Analog Input Signals** Differential Input, effective resolution : 16-bit
Input types : 4 ~ 20 mA, 0 ~ 10 V_{DC}, 3 k & 10 k thermistor
- **Analog Output Signals** Effective resolution : 12-bit
Output types : 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Digital Input Signals** Protected by photocouple
Supports dry/wet contact

- **Digital Output Signals** Open collect output
30 V_{DC}/max, 100 mA
Isolation Voltage : 2000 V_{DC}
- **Input Impedance** 10 Ω
- **Accuracy** ± 0.15% or better
- **Zero Drift** ± 6 mV/ °C
- **Span Drift** ± 25 ppm/ °C
- **CMR @ 50/60 Hz** 92 dB

Environment

- **Humidity** 5 ~ 95% non-condensing
- **Operating Temperature** -10 ~ 50 °C
- **Storage Temperature** -25 ~ 85 °C

Special Features

- **Individual Wire Burn-Out Detection**

Ordering Information

- **BAS-4022T-A** Dual Loop PID Controller for Building Automation