

## 6060

### 1/16 DIN Temperature & Process Controller

- Universal Input
- Supplemental Analog Input
- Up to 4 Digital Inputs
- 6 Outputs
- Heat/Cool Operation
- 2- and 3-Point Control
- Heater, Control Loop and Sensor Alarms
- Self-Tuning Startup
- Capable of 16 Profiles, 16 Segments Each
- Built-in Transmitter Power Supply
- Modbus RTU/RS485
- ChromaloxPro Configuration Software
- cULus, CE



#### Description

Small in size but packed with features and flexibility, the Chromalox 6060 single-loop temperature and process controller is a great choice for precise, cost-effective temperature control for a variety of applications, simple and complex.

**Features and Flexibility for a Sophisticated Level of Control** – Among its many integrated features are two PID sets to ensure reliable control over a wide set point range and separate PID for heat and cool strategies for optimized control and stability. Extensive flexibility is offered with one universal input and one optional input, up to 4 digital inputs, 6 outputs, RS485 communications, and a built-in profiler capable of creating 16 profiles with up to 16 segments each. Manual control is enhanced by the ability to make frequently used functions available at a keystroke.

**Capability and Convenience Further Enhanced by ChromaloxPro Configuration Software** – ChromaloxPro™ configuration software is available to make parameter setup easier and faster. It also enables simulation to test the settings before applying them.

**Robust Control Functionality** – A range of different temperature control functionality includes:

- On/Off
- PID Heat Only (2-point control)
- Heat/Cool (3-point control)
- VMD (3-point stepping control)

Non-linear cooling strategies are also available, which is especially popular for oil, water, and fan cooling applications.

**Self-Tuning Ramps to Setpoint without Overshooting** – Self-tuning during startup determines the optimum process parameters for rapid line-out to setpoint. At power on, changing a set value, or during an external disturbance, the controller uses a three-point controller configuration to make an adaptation attempt whereby the “cooling” parameters are determined separately. This ensures that performance is optimized to the process. Oscillation is not required and deviation of the process value is minimal.

#### Applications

- Industrial Ovens and Furnaces
- Boiler and Steam Processes
- Heat Treatment
- Plastics, Extrusion, and Rubber
- Packaging
- Chiller and Refrigeration Systems
- Laboratory and Test Equipment
- Food and Beverage

## 6060

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#### Frequently Used Functions Available at the Push of a Key

Operation can be customized by configuring frequently used functions to be controlled by the F (function) key on the front panel. This simplifies manual operation and speeds up the management of the controller.

#### Special Functions for Even Greater Control

**Startup Circuit Function for Slow Heat-Up.** This function initially controls and stabilizes heat-up to a startup setpoint (SP.st) that is kept constant during a startup holding time. Subsequently the process is controlled to the main setpoint (SP). If a disturbance reduces the process value, the startup circuit is activated again.

This function is particularly useful for high-performance resistive heating elements with magnesium oxide (MgO) insulation. They must be heated slowly to remove any humidity which improves heater performance. Using the startup circuit function can aid their lifetime.

#### Boost Function

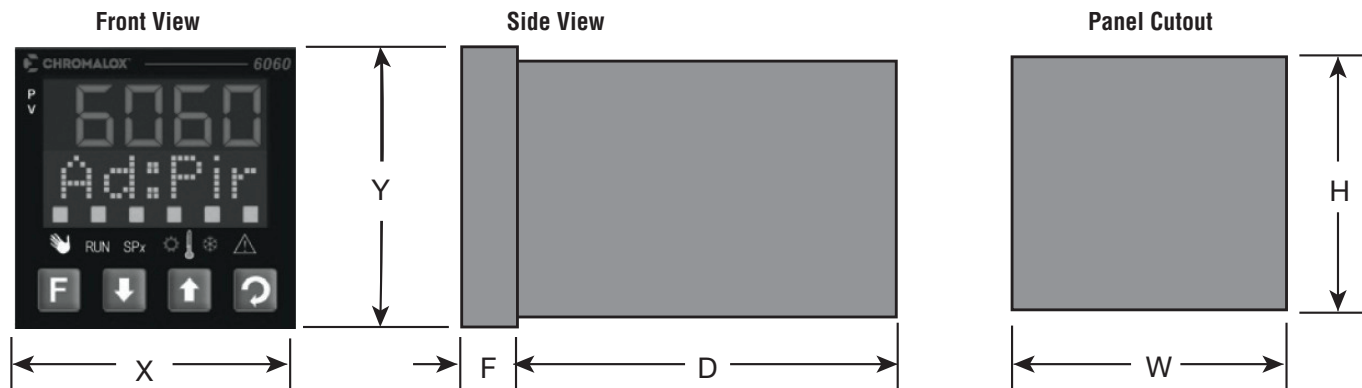
The boost function is for programming the controller to increase heat for a limited duration at startup or cyclically. This is ideal for processes where a short-term increase of heat is required to clear “frozen” material from clogged die nozzles for example.

#### ModBus Master Function

This function allows the Chromalox 6060 controller to serve as a master to other connected controllers acting as slaves, transmitting user-specified signals or parameters cyclically. Examples of possible applications include:

- Setpoint shifting relative to the setpoint adjusted in the slave
- Matching of control parameters, limit contacts, etc.
- Limiting the output value (override control)

Model	X	Y	F	D	W	H
6060	1.89" (48mm)	1.89" (48mm)	0.35" (9mm)	4.35" (110mm)	1.77" (45mm)	1.77" (45mm)



#### Accessories

Description	Part Number
ChromaloxPro Configuration Software Only (60 & 80 Series)	0149-50092
Universal Converter & PC Cable 20/40/50/60/80 Series	309112
Cable Only - 60 Series (6060) to Universal Converter	309147
Snubber (0149-01305)	314448
Current Transformer for Heater Break Alarm (HBA): 0 - 25 Amp	0149-50071
Current Transformer for Heater Break Alarm (HBA): 0 - 50 Amp	0149-50072
Current Transformer for Heater Break Alarm (HBA): 0 - 100 Amp	0149-50073

#### Stocked Items

Description	Part Number
6060-PSRA10	315002
6060-PRRR10	315101

## 6060

### 1/16 DIN Temperature & Process Controller (*cont'd.*)

#### Model 60 Series 1/16 DIN Temperature and Process Controller

**6060** Combination 4 Digit 7-Segment & LCD Text Display on two rows, Universal Input, Up to 6 Outputs, up to 4 Digital Inputs (2: Volt-Free Standard, 2: TTL Optional), Auto or Manual Tuning, Heat/Cool Operation, Ramp to Setpoint and 16 x16 Programs with up to 4 events, Transmitter power supply or Heater Break/ Remote Setpoint, Optional Features: Configuration Software, ModBus RS485 Communications. Operating Temperature: 32° to 140°F (0° to 60°C). IEC IP65 front panel protection, removable screw terminal block. UL/cUL, CE. 2-Year Warranty

Code	Base Option
P	Transmitter Power Supply
H	<sup>1</sup> Heater Current (0-30mA ac) / Remote Setpoint (0/4-20mA dc)

Code	Output 1
R	Relay (2 Amp resistive at 240 VAC, SPDT, Form C)
S	SSR (0/10 VDC, 500 Ω Minimum load)
W	Dual SSR Output - Non Isolated, 0/10 VDC, 500 Ω Minimum load
A	Analog (Linear DC: 0-20mA, 4-20mA, 0-5V, 0-10V, 2-10V)

Code	Output 2
0	None
R	Relay (2 Amp resistive at 240 VAC, SPDT, Form C)
M	Dual Relay Output - 2 Amp 240 VAC, Form A (X 2)
S	SSR (0/10 VDC, 500 Ω Minimum load)
W	Dual SSR Output - Non Isolated, 0/10 VDC, 500 Ω Minimum load

Code	Output 3
0	None
R	Relay (2 Amp resistive at 240 VAC, SPDT, Form C)
S	SSR (0/10 VDC, 500 Ω Minimum load)
W	Dual SSR Output - Non Isolated, 0/10 VDC, 500 Ω Minimum load
A	Analog (Linear DC: 0-20mA, 4-20mA, 0-5V, 0-10V, 2-10V)
1	<sup>2</sup> RS485 (ModBus/RTU) Digital Comms

Code	Feature Option A
0	None
1	<sup>2</sup> RS485 (ModBus/RTU) Digital Comms
2	Dual Isolated Digital Input (TTL Input)

Code	Power Supply
0	100 - 240VAC
1	24VAC, 18-30Vdc

6060- P W M A 0 0 Typical Model Number

#### Order Table Notes:

<sup>1</sup>If Choosing Heater Current Setup, This Requires 1 On/Off Type Output from above (R, S, W or M) & 1 Current Transformer ordered separately.

<sup>2</sup>Between Output 3 and Feature Option A, only one RS485 ModBus Code may be selected.

**Technical Notes:** Quick Start Manuals are shipped with the Controller. Full Installation & Instruction Manuals are available on line at [www.chromalox.com](http://www.chromalox.com)