

4080

Advanced Temperature & Process Controller

- 1/4 DIN Format
- **Up to 9 Outputs: Control, Alarms, Profiler Events, Retransmit & 24 VDC Transmitter Power Supply**
- **Up to 5 Programmable Event Outputs: Process High/Low, Deviation & Band, Sensor Break, Loop**
- **Reinforced Safety Isolation from Outputs and Inputs**
- **Profiling Option**
 - 64 Programs Using 255 Segments
 - Ramp, Dwell, Hold, Loop, Join, End & Repeat
- **Data-Logging Option (Data, Alarms & Events)**
- **Real Time Clock**
- **USB Port To Access Files**
- **Large Graphical / Text LCD Display**
 - Trend View
 - Color Change LED Backlight On Alarm
 - Configurable User-Menu Structure
- **Simplified Programming Wizard**
- **Ratio Control**
- **Valve Motor Control**
- **2nd Universal Input also For Monitoring**
- **Modbus RS485 & Modbus TCP Ethernet**
- **ChromaloxPro Configuration Software**
- **Multiple Language Option**
- **Standards: UL, cUL and CE**

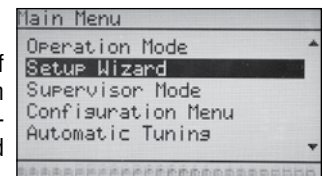


Description

The Chromalox 4080 is an affordable temperature and process controller with advanced functionality including profiling and data-logging options. The 4080 incorporates a graphic/text LCD display and is designed to improve user efficiency with many features integrated to reduce startup time, simplify operation and minimize downtime.

Improved Process Visibility

One of the key factors in maintaining and improving operation of a system is to have high visibility of the process. The LCD screen on the 4080 displays clear real-text messages, removing ambiguity that can be caused by mnemonic codes on LED displays used in many products.

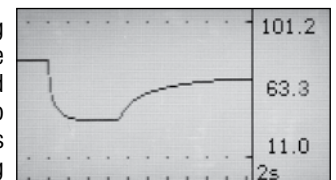


Simplified Operation

Operators can improve efficiency and reduce the possibility of errors by creating an optimized menu structure for screen navigation. The 4080 configuration tool is used to provide operators with the specific parameters needed in the order desired. Security is assured with password protection on supervisor and configuration parameter access levels.

A Complete & Compact Control Solution

Advanced process and temperature control, extensive profiling capability, high visibility alarms and data-logging functions are all packaged within a single 1/4 DIN product. The integrated control and monitoring functions of the 4080 translates into fewer system control components. This reduces wiring, shrinks the panel footprint and compresses installation time, resulting in a lower system cost.



Minimize Setup Time

Time is money. Constantly referring to instruction manuals increases startup time and can lead to confusion. A number of tools are available with the 4080 to simplify the configuration process: An easy setup wizard; on-screen help; ChromaloxPro™ software for on or offline programming; and secure local configuration with a memory stick via the optional front access USB port.

4080 Advanced Temperature & Process Controller *(cont'd.)*

Features

Advanced Process Control

- Easy setup wizard for quick configuration
- Universal input for T/C, RTDs & Linear DC signals
- Up to 9 output options including Triac & Linear DC
- Digital input
- Configurable menus
- Pre-tune and self-tune function
- RS485 Modbus or Ethernet option
- USB port for local files access
- Master-slave config for multi-zone apps

Profiling Functionality

- 255 segments used within 64 programs
- Ramp, dwell, hold, loop or jump to other profile
- User-defined text profile names
- Delayed or day/time profile start
- Detailed overview of profile status
- Up to 5 event outputs
- Bar graph profile and segment progress

Integrated Data-Logging Option

- Historic data for analysis or reporting
- Trend view and alarm indication
- Export data files via front USB or comms
- Log PV's, SP's or alarms (including min, max & ave)
- Run/Stop or FIFO (first in-first out) recording
- Logging time intervals from 1s to 30m

Real text display with graphics

- Easy to read green/red LCD display
- Screen color can be set to change on alarm
- Multi-language option
- Custom splash-screen on startup
- Graphical trend view
- LED indication of heat, cool, auto-tuning and alarms

ChromaloxPro Configuration Suite

Save time with the ChromaloxPro software configuration tools.

- Change parameter settings
- PID tuning
- Offline simulation tools – reduce risk
- Visibility of live process data
- Fine-tune settings for optimum performance
- Back-up all settings for quick reconfiguration

Customize 4080 for your process

- Optimized menu structure – simplify operation
- Modify text labels to match system operation
- Create a company contact page

Specifications

FEATURES

| | |
|----------------------------|---|
| Control types..... | Full PID with pre-tune, auto-pretune, self-tune or manual tuning, heat only or heat and cool |
| Auto manual..... | Selectable with 'bumpless' transfer when switching between auto and manual control |
| Output configuration | Up to 9 for control, alarms, profiler event outputs, 24 VDC transmitter power supply & retransmission. |
| Alarms | Up to 5 alarms selectable as process high, process low, deviation & band, plus sensor break and loop alarms. Logical OR alarm outputs. |
| HMI | Display: 160 x 80 pixel, monochrome graphic LCD with a dual color (red/green) backlight; 4 button operation; 4 LEDs to Indicate heat, cool, auto-tuning and alarm |
| PC configuration | ChromaloxPro configuration and commissioning software |

INPUT

| | |
|----------------------|--|
| Thermocouple | J, K, R, S, T, B, C, D, E, L, N, PtRh 20%:40% |
| RTD | 3 wire PT100, NI120 |
| DC Linear | 0 -20 mA, 4-20 mA, 0-50 mV, 10-50 mV, 0-5 V, 1-5 V, 0-10 V, 2-10 V (0-100 mV and 2K Ω pot also on aux-B input) scaling -1999 to 9999 |
| Accuracy | $\pm 0.1\%$ of input range ± 1 LSD, Thermocouple CJC, (Aux Input : $\pm 0.25\%$ of input range ± 1 LSD) |
| Sampling rate | Process input 10 per second, Aux input : 4 per second |
| Sensor break | Detected within 2 seconds, control goes to user preset power value. |
| Digital inputs | Functions: setpoint select, control output, enable/disable, auto/manual control, profiler run/hold/abort, data-logger start/stop Volt free contact or DC voltage: open contact / 2 to 24 VDC signal = Logic high, closed contact / -0.6 to 0.8 VDC signal = Logic low |

OUTPUTS

| | |
|------------------|--|
| Relay | Single relay: 2 A resistive SPDT at 120/240 VAC, >500,000 operations Dual & Quad relay: 2 A resistive SPST at 120/240 VDC, >200,000 operations (dual) or >500,000 operations (quad) |
| SSR Driver | Voltage >10V into 500 Ω min |
| Triac | Operating voltage: 20 to 280 Vrms (47 to 63 Hz), Rating 0.01 to 1 A @ 25°C |
| Linear DC | Ranges: 0-5 V, 0-10 V, 1-5 V, 2-10 V, 0-20 mA & 4-20 mA (selectable) $\pm 0.25\%$ of range (mA@250 Ω , V@2k Ω) |

4080 Advanced Temperature & Process Controller *(cont'd.)*

Specifications *(continued)*

| | |
|----------------------|---|
| Transmitter PSU..... | Power rating 24 V nominal (19 to 28 VDC) into 910Ω min (option to use DC linear output as 0-10 V adjustable Tx PSU) |
| Communications..... | RS232 via RJ11 cable, (configuration only) RS485 - Modbus RTU master or slave, Ethernet - Modbus TCP slave (10 base-T or 100 base-T), Ver 1.1/2.0 USB host for memory stick |

PROFILER

| | |
|--------------------|---|
| Memory..... | 255 segments can be freely allocated in up to 64 programs |
| Segment types..... | Ramp (rate or time), dwell (soak), hold (manual guaranteed soak or real-time profiling), loop (to previous segment), join another profile, end or repeat sequence |
| Control..... | Run, hold, abort, profile select, jump to next segment, delayed profile start, real-time clock profile start. |

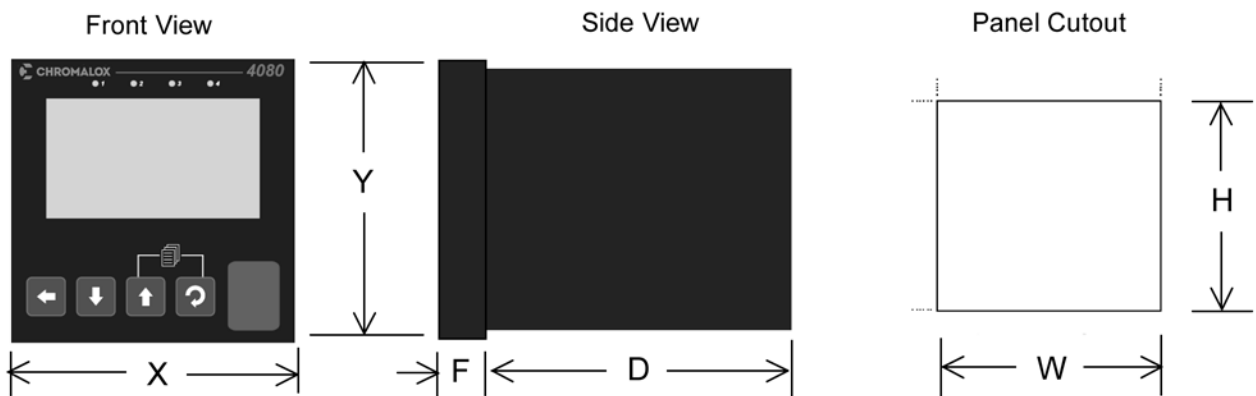
DATA-LOGGER

| | |
|--------------------------|---|
| Data record options..... | PV (Process variable), max and min PV between samples, actual SP (setpoint), output power, alarm & event status, power on/off |
| Record modes..... | FIFO (circular buffer) or run-then-stop (fixed buffer) |
| Recording Interval..... | 1, 2, 5, 10, 15, 30 sec or 1, 2, 5, 10, 15, 30 min |
| Control..... | Manual; serial comms; digital input; synchronized with profile; PV rate of change; log on alarm |

ENVIRONMENTAL

| | |
|-----------------------|--|
| Standards..... | CE, UL, cUL. EMI - EN61326, Safety EN61010-1 & UL61010C-1 Pollution degree 2, Installation category II |
| Protection..... | Front Panel: NEMA 4, IP66 (IP65 with USB fitted). Behind panel IP20 |
| Temperature & RH..... | 0 to 55°C (-20 to 80°C Storage), 20% to 95% RH Non-Condensing |

| Model | X | Y | F | D | W | H |
|-------|--------------|--------------|--------------|---------------|--------------|--------------|
| 4080 | 3.78" (96mm) | 3.78" (96mm) | 0.39" (10mm) | 4.61" (117mm) | 3.62" (92mm) | 3.62" (92mm) |



Accessories

| Model | Description | Part Number |
|-------|---|-------------|
| 4080 | ChromaloxPro Configuration Software & Cable | 0149-50061 |
| | Snubber | 0149-01305 |

4080 Advanced Temperature & Process Controller *(cont'd.)*

Model Advanced Temperature & Process Controller

4080 1/4 DIN

Code **Unit Type**

- C** Controller
- U** Controller with USB Port
- R** Controller/Recorder with USB Port & Real Time Clock

Code **Profiler Option**

- 0** Not Fitted
- P** Profiler

Code **Output 1**

- 0** None
- R** *Relay (2 Amp resistive at 240 VAC)
- S** *SSR (0/10 VDC, 500Ω Minimum load)
- A** *Analog (0-10V, 0-20mA, 0-5V, 2-10V, 4-20mA)
- T** *Triac (1 Amp AC)

Codes **Output 2 & Output 3 (Choose the Appropriate Code for Each)**

Out 2 **Out 3** **Output Type**

- | | | |
|----------|----------|--|
| 0 | 0 | None |
| R | R | *Relay (2 Amp resistive at 240 VAC) |
| S | S | *SSR (0/10 VDC, 500Ω Minimum load) |
| A | A | *Analog (0-10V, 0-20mA, 0-5V, 2-10V, 4-20mA) |
| T | T | *Triac (1 Amp AC) |
| M | M | *Dual Relay Output - 2 Amp 240 VAC, (X2), Form A, normally open, comm term |
| W | W | *Dual SSR Output - Non Isolated, (X2), 0/10 VDC, 500Ω Minimum load |
| P | P | *Isolated Power Supply 24 VDC, 910Ω Minimum |

Code **Output 4**

- 0** None
- 1** *4 Relay Output - 2 Amp 240 VAC, Form A, norm. open, NOT comm term

Code **Feature Option A**

- 0** None
- 1** RS485 (ModBus/RTU) Digital Comms
- 2** Digital Input (Voltage Free or TTL Input)
- 3** ¹Remote Setpoint - Manual Set (RSP) Analog Input A
- 4** Ethernet Port - ModBus TCP Slave

Code **Feature Option B**

- 0** None
- 1** ¹Enhanced Remote Setpoint Input & Digital Input

Code **Feature Option C**

- 0** None

Code **Power Supply**

- 0** 100 - 240V AC
- 1** 24 - 48V AC/DC

4080- U P S S R - 0 1 0 0 0 Typical Model Number

Order Table Notes:

¹ Between Feature Options A&B, only one Remote Setpoint may be selected.

Technical Notes:

1. Quick Start manuals are shipped with the controller. Full installation and instruction manuals are available online at www.chromalox.com
*Reinforced 240V safety isolation from inputs and other outputs