6040/8040/4040
Temperature & Process Controllers

NEW!

- Universal Input
- Jumperless Configuration
- Auto Detected Hardware
- Process & Loop Alarms
- ModBus Communications
- Auto or Manual Tuning
- Heat/Cool Operation
- Up to 3 Outputs
- Optional 24 Vdc Transmitter Power Supply
- Ramping Setpoint
- Adjustable Hysteresis
- Valve Motor Drive Position
- Heater Break Alarm Function
- Remote/Dual Setpoint Options
- Security Options
- Available in 1/16, 1/8 & 1/4 DIN Sizes
- Optional Configuration Software
- UL, cUL, CE & CSA
- 3 Year Warranty

Description

Whether you have to manage temperature, flow, valve positioning or pressure, the Chromalox 40 Series Temperature & Process Controllers provide you with a comprehensive feature list and the flexibility to meet your most demanding process needs.

Application needs change over time, but that doesn't mean that you'll need to change your controller. The Chromalox 40 series modular card design provides the owner with the flexibility to alter the functionality with ease. Expansion from 1 to 3 outputs, as well as communications and remote setpoint is easily accomplished and automatically recognized by the firmware.

The optional ChromaWare™ configuration software allows the owner to program multiple units efficiently and store parameter settings for later use.

The 40 Series Controllers are an ideal complement in both design and esthetics to its cousin, the Chromalox 50 Series Limit Controllers.

Features

- Universal Input
- Full PID with Pre-tune, Self-tune, Manual tuning, or On-Off control. Heat only or Heat & Cool
- Auto Detected Hardware
- Process & Loop Alarms
- ModBus Communications
- Auto or Manual Tuning
- Heat/Cool Operation
- Ramping Setpoint
- Valve Motor Drive Position Option
- Heater Break Alarm Function Option
- Alarm 1 & 2 Types:
  - Process high/Process low
  - SP deviation, Band
  - Logical OR / AND
  - Also 1 loop alarm for process control security.
  - Process alarms have adjustable hysteresis.
- 24 VDC Output for loop power
- PC Configuration Software
- Remote Setpoint Input:
  - 0 to 20mA, 4 to 20mA, 0 to 5V, 1 to 5V, 0 to 10V or 2 to 10V.
  - Scaleable -1999 to 9999.
  - Local/Remote setpoint selected from front panel
- Output Configuration:
  - Up to 3 possible, for control, alarm, 24 VDC transmitter power supply or retransmit of process value or Setpoint

Accessories

Models	Description	Part Number
40 & 50 Series	ChromaWare Configuration Software	0149-50060
	Cable for Configuration Software	0149-50062
	Snubber	0149-01305

Stocked Items

DIN Size	Part Number	PCN	DIN Size	Part Number	PCN
1/16	6040-R00000	314616	1/16	6040-RRR001	314659
1/16	6040-S00000	314720	1/8	8040-R00000	314544
1/16	6040-RR0000	314624	1/4	4040-ARR000	314528
1/16	6040-SR0000	314632	1/4	4040-R00000	314704
1/16	6040-RRR000	314640	1/4	4040-RRR000	314510

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6040/8040/4040 Temperature & Process Controllers *(cont'd.)*

Specifications

FEATURES

Control Types ....Full PID with Pre-tune, Self-tune, manual tuning, or On-Off control. Heat only or heat & cool

Auto/Manual ....Selectable from front panel or via digital input, with bumpless transfer

Output Configuration ....Up to 3 possible, for control, alarm, 24VDC transmitter power supply or retransmit of process value or setpoint

Alarm 1 & 2 Types ....Process high, process low, SP deviation, band, logical OR / AND. Also 1 loop alarm for process control security. Process alarms have adjustable hysteresis.

Human Interface ....4 button operation, dual 4 digit 10mm & 8mm high (6040, 8040) and 13mm & 10mm high (4040) LED displays, plus 5 LED indicators

PC Configuration ....Off-line configuration from PC serial port to dedicated config socket (comms option not required). ChromaWare Configuration Software for Windows 98 or higher.

INPUT

Thermocouple ....J, K, C, R, S, T, B, L, N & PtRh20%vsPtRh40%.

RTD ....3 Wire PT100, 50Ω per lead maximum (balanced)

DC Linear ....0 to 20mA, 4 to 20mA, 0 to 50mV, 10 to 50mV, 0 to 5V, 1 to 5V, 0 to 10V, 2 to 10V. Scaleable -1999 to 9999, with adjustable decimal point

Impedance ....>10MΩ for Thermocouple and mV ranges, 47KΩ for V ranges and 5Ω for mA ranges

Accuracy ....±0.1% of input range ±1 LSD (T/C CJC better than 1°C)

Sampling ....4 per second, 14 bit resolution approximately

Sensor Break Detection ....<2 seconds (except zero based DC ranges), control O/P's turn off, high alarms activate for T/C and mV ranges, low alarms activate for RTD, mA or V ranges

OUTPUTS & OPERATIONS

Control & Alarm Relays ....Contacts SPDT 2 Amp resistive at 240V AC, >500,000 operations

Control SSR Driver Outputs .....Drive capability >10V DC in 500Ω minimum

Triac Outputs ....0.01 to 1 Amp AC, 20 to 280Vrms, 47 to 63Hz

DC Linear Outputs ....0 to 20mA, 4 to 20mA into 500Ω max, 0 to 10V, 2 to 10V, 0 to 5V into 500Ω min. Control outputs have 2% over/under drive applied. Accuracy ±0.25% at 250Ω (degrades linearly to 0.5% for increasing burden to specified limits)

Transmitter Power Supply ....Output 24VDC (nominal) into 910Ω minimum to power external devices

Communications ....2 Wire RS485, 1200 to 19200 Baud, Modbus protocol

Digital Input ....Selects between 2 setpoints or Auto/Manual control. Volt free or TTL input

Remote Setpoint Input ....0 to 20mA, 4 to 20mA, 0 to 5V, 1 to 5V, 0 to 10V or 2 to 10V. Scaleable -1999 to 9999. Local/Remote setpoint selected from front panel

OPERATING & ENVIRONMENTAL

Temperature & RH ....0 to 55°C (-20 to 80°C storage), 20% to 95% RH non-condensing

Power Supply ....100 to 240V 50/60Hz 7.5VA (optional 20 to 48V AC 7.5VA/22 to 65V DC 5 watts)

Front Panel Protection ....NEMA 4, IEC IP66 (Behind panel protection is IP20)

Standards ....CE, CSA, UL & cUL recognized

Model	X	Y	F	D	W	H
6040	1.89" (48mm)	1.89" (48mm)	0.35" (9mm)	4.33" (110mm)	1.77" (45mm)	1.77" (45mm)
8040	1.89" (48mm)	3.78" (96mm)	0.39" (10mm)	3.94" (100mm)	1.77" (45mm)	3.62" (92mm)
4040	3.78" (96mm)	3.78" (96mm)	0.43" (11mm)	3.94" (100mm)	3.62" (92mm)	3.62" (92mm)
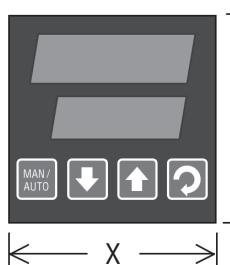
Front View   Side View   Panel Cutout

Chromalox®
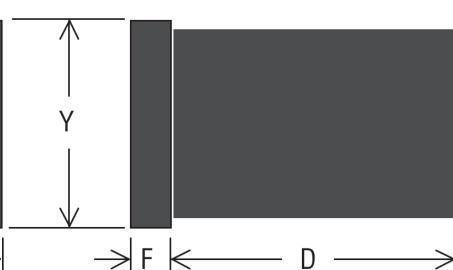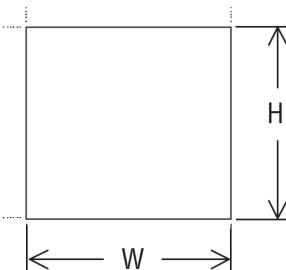
6040/8040/4040
Temperature & Process Controllers *(cont'd.)*

Model	40 Series Temperature & Process Controller
6040	1/16 DIN
8040	1/8 DIN
4040	1/4 DIN

	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)

		Code	Output 2
		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)

			Code	Output 3
			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)
			P	Isolated Power Supply 24 VDC (910Ω min)

				Code	Feature Option A
				0	None
				1	RS485 Digital Communications
				2	Digital Input (Voltage Free or TTL Input)
				3	[3] Remote Setpoint - Manual Set (Not available if H is selected in Feature Option B)

					Code	Feature Option B
					0	None
					1	[3] Enhanced Remote Setpoint Input & Digital Input - (Not available on the 6040 model)
					V	[1] Valve Motor Drive Position
					W	[1,3] Valve Motor Drive Position & Remote Setpoint - (Not available on the 6040 model)
					H	[2] Heater Break Alarm Function (Available ONLY on 6040 model)
					9	Other Special Firmware

						Code	Power Supply
						0	100 - 240V AC
						1	24 - 48V AC/DC

4040-	R	S	A	0	0	0	Typical Model Number

Order Table Notes:
[1] Requires 2 On/Off Outputs from above (R, S or T)
[2] Requires 1 On/Off Output from above (R, S or T) & a Current Transformer
[3] Between Feature Options A&B, only one Remote Setpoint may be selected

Current Transformers for HBA Function

Current Rating	Part Number
0 - 25 Amp	0149-50071
0 - 50 Amp	0149-50072
0 - 100 Amp	0149-50073