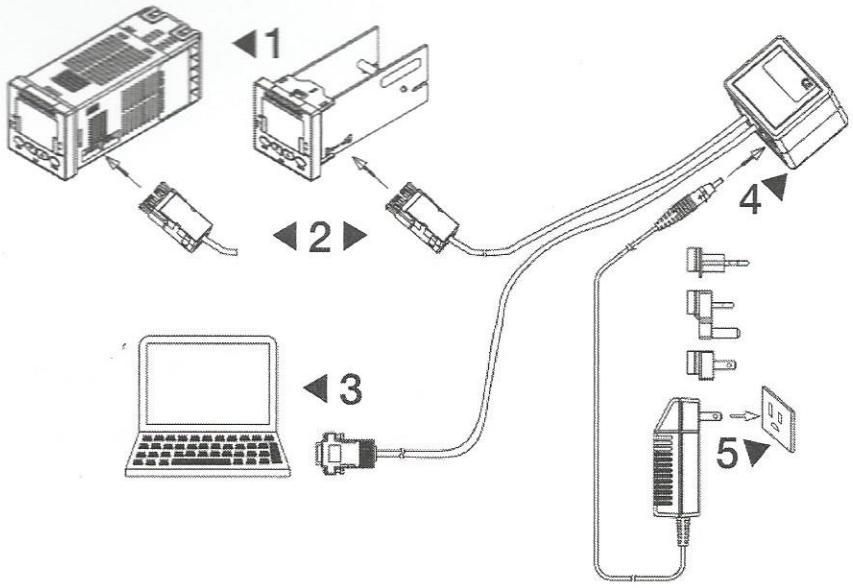
1603E
Configuration Port & Kit



The 1603E can be connected to the remote Configuration Kit, CNFG-10000. This method of configuration is ideal for OEM's for quick setup and for resellers to easily program a controller for the specific needs of a customer.

Setup is simple:

1. Remove the 1603E from the shipping box or from the case.
2. Snap the push pin connector into the side of the 1603E.
3. Connect the 9 pin connector to the PC's RS232 port.
4. Connect the Power Supply.
5. Download the setup.

The controller doesn't need power. WIRING is Not required. The configuration software can download all the parameters. Special setups can be saved for future downloads.

The Configuration Kit CNFG-10000 consists of the following:
- Configuration Software Windows Based CDROM
- Hardware Connection Assembly
- Power Supply with Standard Wall Plug

The Hardware Connection Assembly has a 9 Pin RS232 connector for hook up to a PC COM Port, a specially designed connector for connection to the 1603E Configuration Port and a connection for the power supply.

Ordering Information

Complete the model number using the matrix provided.

Model	1/16 DIN Temperature Controller
1603E	SMART Self-Tuning, Field Selectable Thermocouple or RTD Inputs, Nema 4X faceplate 3 digit dual display

Code	Output 1 - Heat or Cool
1	Relay SPDT, 3A, 250VAC, resistive load
6	SSR drive, 14Vdc at 20mA

Code	Output 2 - Cool or Alarm
0	None
1	Relay SPST, 2A, 250VAC, resistive load

Code	Options
0	None
1	Alarm 2 (Out 3) Relay SPST, 2A 250Vac, resistive load
2	Logic Input for timer function or SP1/SP2 Selection

Code	Power Supply
3	100 - 240VAC
5	24 VAC or VDC

Code	
0	Add to complete part number

1603E -	1	1	1	3	1	Typical Model Number

Accessories

Part Number	PCN	Description
CNFG-10000	317614	Remote Configuration Kit
0149-01305	314448	Snubber

In Stock

Model	PCN
1603E-11030	317577
1603E-61030	317585
1603E-11050	317593
1603E-11130	305947
1603E-61130	305955
1603E-11230	305963
1603E-61230	305971

OBSolete Controller

6040/8040/4040
Temperature & Process Controllers

- **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**

NEW!

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

Replacement Controller — same size

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

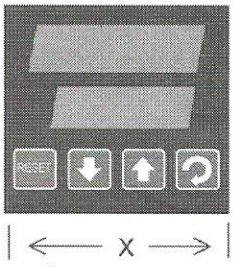
Control & Alarm Relays	Contacts SPDT 2 Amp resistive at 240V AC, >500,000 operations
Control SSR Driver Outputs	Drive capability >10V DC in 500Ω minimum
Triac Outputs	0.01 to 1 Amp AC, 20 to 280Vrms, 47 to 63Hz
DC Linear Outputs	0 to 20mA, 4 to 20mA into 500Ω max, 0 to 10V, 2 to 10V, 0 to 5V into 500Ω 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

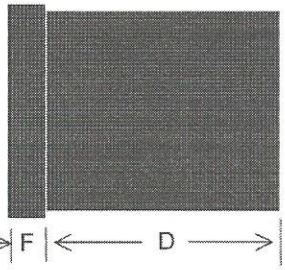
Temperature & RH	0 to 55°C (-20 to 80°C storage), 20% to 95% RH non-condensing
Power Supply	100 to 240V 50/60Hz 7.5VA (optional 20 to 48V AC 7.5VA/22 to 65V DC 5 watts)
Front Panel Protection	NEMA 4, IEC IP66 (Behind panel protection is IP20)
Standards	CE, CSA, UL & cUL recognized

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)

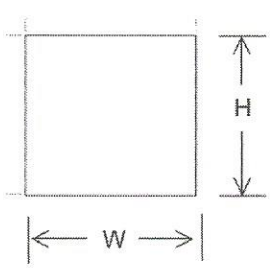
Front View



Side View



Panel Cutout



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

Same size as 1603E-11030

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)

only 2 amp 240vac - make sure amp okay

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)
M	[4]Dual Relay Output - 2 Amp, Form A

similar relay - make sure okay

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)
M	[4]Dual Relay Output - 2 Amp, Form A (Not available on the 6040 model)

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

same

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
[4]Only available when V or W is selected in Feature Option B.

Current Transformers for HBA Function

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