CHROMALOX

6140/4140
Temperature & Process Controllers

- Universal Input
- Large LCD Display
- Process & Loop Alarms
- ModBus Communications
- Auto or Manual Tuning
- Heat/Cool Operation
- Up to 5 Outputs
- Ramping Setpoint
- Adjustable Hysteresis
- Partial or Full Load Break Alarm Function
- Remote Setpoint Options
- Energy Counter
- Security Options
- Available in 1/16 & 1/4 DIN Sizes
- Optional Configuration Software
- UL, cUL, CE
- 3 Year Warranty



NEW!

CE

c UL us

Description

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

The optional C-PWR configuration software, which can be found on www.chromalox.com, 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.

Accessories

Part Number	Description
0149-50200	Programming Cable
0149-50201	Gasket for 6140
0149-50202	Gasket for 4140
0149-50203	Fastening Clip for 6140
0149-50204	Fastening Clip for 4140
0006-12154	Surface Mount for 6140
0006-12151	Surface Mount for 4140

NOTE: All Controllers come with a Gasket and Fastening clips

Stocked Temperature & Process Controllers

Power Supply Voltage	Model	Inputs			Outputs					RS485	Logic functions	Total Number of Outputs
		Digital	CT	Remote Setpoint	Relay	Triac	SSR Driver	Analog I	Analog Retrans			
100-240V	**6140-R-R00-00000-1-G**				2							2 outputs
100-240V	**6140-D-R00-00000-1-G**				1		1					
20-27V	**6140-D-R00-00101-0-G**		1		1		1			•		
100-240V	**4140-D-R00-00000-1-G**				1		1					
100-240V	**6140-C-RR0-00101-1-G**		1		2			1		•		3 outputs
100-240V	**4140-R-RR0-00000-1-G**				3							
100-240V	**4140-C-DRR-11251-1-G**	5	2	1	2		1	1	1	•		5 outputs

6140/4140

Temperature & Process Controllers *(cont'd.)*

INPUTS		*6140*	*4140*
MAIN INPUT	Sensor type	TC, RTD (PT100, JPT100), infrared sensor (only for 4140), DC linear sensor	
	Accuracy	**TC inputs:** Calibration accuracy: < +/- (0,25% of reading value in °C +0,1°C) Linearization accuracy: 0,1% of reading value Cold junction accuracy: < +/- 1,5°C a 25°C room temperature) Cold junction compensation: > 30:1 rejection to the change of the room temperature **RTD input:** Calibration accuracy: < +/- (0,15% of reading value in °C +1°C) Temperature drift: < +/- (0,005% of reading value in °C +0,015°C)/°C from 25°C room temperature Linearization accuracy: 0,1% of reading value **Linear inputs:** Calibration accuracy:< 0,1% full scale Temperature drift: < +/- 0,005% full scale /°C at 25°C room temperature	
	Sampling time	60 ms / 120 ms, selectable	
	Digital filter	0,0...20,0 s	
	Temperature unit of measurement	Degrees C / F, selectable from keypad	
	Signal interval	Type: linear Scale: -1999...9999, settable decimal point	
	TC (thermocouple) input	Thermocouple: J, K, R, S, T, C, D, B, E, L, L-GOST, U, G, N, Pt20Rh-Pt40Rh Linearization: ITS90 or custom	
	RTD (resistance thermometer) input	Resistance thermometer: PT100, JPT100 Input impedance (Ri): ≥ 30 kΩ Linearization: DIN 43760 or custom Max. line resistance: 20 Ω	
	DC linear input	0...60 mV input impedance (Ri): > 70 kΩ 0...1 V input impedance (Ri): > 15 kΩ 0...5 V / 0...10 V input impedance (Ri): > 30 kΩ 0/4...20 mA input impedance (Ri): 50 Ω Linearization: linear or custom	
AUXILIARY INPUT	Remote setpoint	0...1 V, 0...10 V, 0/4...20 mA	
	Scale	0...1 V input impedance (Ri): > 15 kΩ 0...10 V input impedance (Ri): > 30 kΩ 0/4...20 mA input impedance (Ri): 50 Ω	
	Accuracy	0,1% f.s. ±1 digit @25 °C	
CT (ammeter) INPUT	Type	Isolated via external transformer	
		Number: 2 max Max. capacity: x / 50 mA AC Line frequency: 50/60 Hz Input impedance (Ri): 10 Ω	
	Accuracy	±2% f.s. ±1 digit @25 °C	
DIGITAL INPUTS	Type	voltage-free contact, or NPN 24 V - 4,5 mA, or PNP 12/24 V - max 3,6 mA *(for detail see electrical connections)*	
	Isolation	500 V	
	Number	3 max	5 max

6140/4140

Temperature & Process Controllers *(cont'd.)*

OUTPUTS		6140	4140
	Relay (R)	Number: 4 max Type of relay contact: NO Max. current: 5 A, 250 VAC	Number: 4 max Type of relay contact: NO Max. current: 5 A, 250 VAC / 30 VDC, cosφ = 1
		Minimum load: 5 V, 10 mA Life cycle: > 100.000 operations Double isolation	
	Logic (D)	Number: 2 max Type: for solid-state relays Voltage: 24 V ±10% (min 10 V @20 mA) Isolated from main input	
	Triac (long life relay) (T)	Number: 1 max Load: resistive Voltage: 75...264 VAC Current max: 1 A Isolation 3 kV snubber circuit integrated zero crossing switching	
	Continuous (C)	Number: 1 max Current: 4...20 mA R_{out} : < 500 Ω Resolution: 12 bit Isolated from main input	
	Analog retransmission (A1)	Number: 1 max 0...10 V, max 20 mA, R_{out}: > 500 Ω 0...20 mA, 4...20 mA, R_{out}: < 500 Ω Resolution: 12 bit Isolated from main input	
ALARMS	Number of alarm functions	4 max, assignable to an output	
	Possible configurations	Maximum, minimum, symmetric, absolute/relative, exclusion at firing, memory, reset from keypad and/or contact, LBA, HB, HBB Hold Back Band if enabled with Programmer function	
CONTROL FUNCTIONS		**6140**	**4140**
CONTROL	Type	Single loop	
	Control	PID, ON/OFF, single action heat or cool, double action heat/cool	
	Control output	Continuous or ON/OFF Cycle time: constant or optimized (BF)	
	Control output for motorized valves	OPEN/CLOSE for floating motorized valve on Relay, Solid-state, Triac outputs	
SETPOINT PROGRAMMER	Number of programs	Max 4 Start / Stop / Reset / Skip via digital inputs and/or outputs from logic operations Output state: Run /Hold / Ready / End	
	Number of steps	Max 32 freely selectable if in non-simplified mode: if in "Simplified programmer" mode, MAX 8 steps per program, with fixed order: Program 1, Step 1-8, Program 2, Step 9 – -16, and so on. Each with own setpoint, ramp time and hold time Times settable in HH:MM or MM:SS Max 4 consents, configurable for ramp and for hold Max 4 events, configurable in ramp and in hold	
MULTIPLE SETPOINTS	Number of setpoints	Max 4, selectable from digital input Each setpoint change is subject to set ramp, different for up and down ramp	

6140/4140

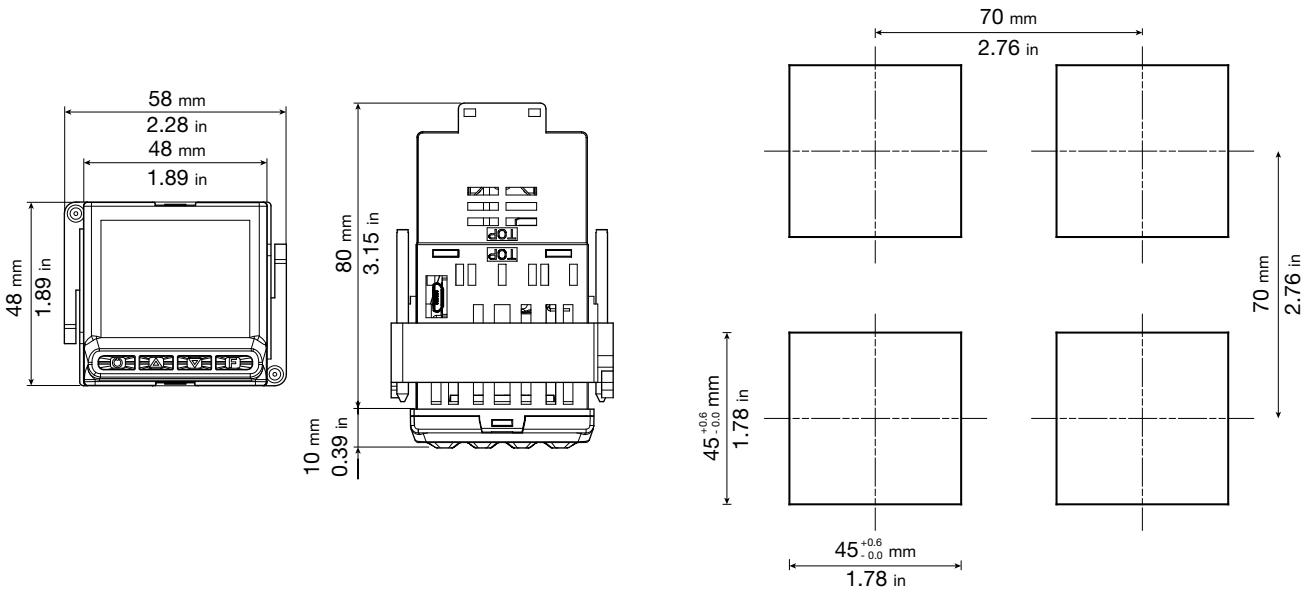
Temperature & Process Controllers *(cont'd.)*

CONTROL FUNCTIONS		6140	4140
TIMER FUNCTION	Modes	START / STOP STABILIZATION (timer is on when PV enters a band set around setpoint; at end of count you can activate an output, shut down SW or change SP1/SP2) FIRING (timed activation of control after power on)	
ENERGY COUNTER		Calculation done on nominal line voltage and nominal load power or on rms current measured on load via CT	
DIAGNOSTIC		Short circuit or open circuit (LBA alarm) Interrupted or partially interrupted load (HB alarm) Short circuit of control output (SSR alarm)	
RETENTIVE MEMORY	Type	EEPROM	
	Max. number of writes	1.000.000	
SERIAL INTERFACE		**6140**	**4140**
		Type: RS485 Baudrate: 1200, 2400, 4800, 9600, 19.200, 38.400, 57.600,115.200 bit/s Protocoll: MODBUS RTU Isolated from main input	
GENERAL DATA		**6140**	**4140**
POWER SUPPLY	Operating voltage	100...240 VAC/VDC ±10%, 50/60 Hz (on request 20...27 VAC/VDC ±10%)	
	Power dissipation	5 W max	10 W max
	Protections	Overvoltage 300 V / 35 V	
	Connection	Screw terminals and crimp connector, max. wire section 1 mm^2	
CONNECTIONS	Serial configuration port (for USB connection)	Connector: microUSB	
	Inputs and outputs	Screw terminals and crimp connector, max. wire section 2,5 mm^2	
AMBIENT CONDITIONS	Use	Indoor	
	Altitude	2000 m max	
	Operating temperature	-10 ... +55 °C (as per IEC 68-2-14) (14 ... +131 °F)	
	Storage temperature	-20 ... +70 °C (as per IEC 68-2-14) (-4 ... +158 °F)	
	Relative humidity	20...85% RH non-condensing (as per IEC 68-2-3)	
PROTECTION LEVEL		IP 65 on front panel (as per IEC 68-2-3)	
ASSEMBLY	Positioning	On panel, removable faceplate	
	Installation regulations	Installation category: II; Pollution degree: 2 Isolation: double	
DIMENSIONS		48 × 48 mm (1/16 DIN), Depth: 80 mm	96 × 96 mm (1/4 DIN) Depth: 80 mm
WEIGHT		0.16 kg / 0.353 lbs	0.24 kg / 0.53 lbs
CE STANDARDS	EMC (electromagnetic compatibility)	Conforms to directive 2014/30/EU with reference to standard EN 61326-1 emission in industrial environment class A for models 650 LV emission in residential environment class B for models 650 HV	
	Safety LVD	conforms to directive 2014/35/EU with reference to standard EN61010-1	

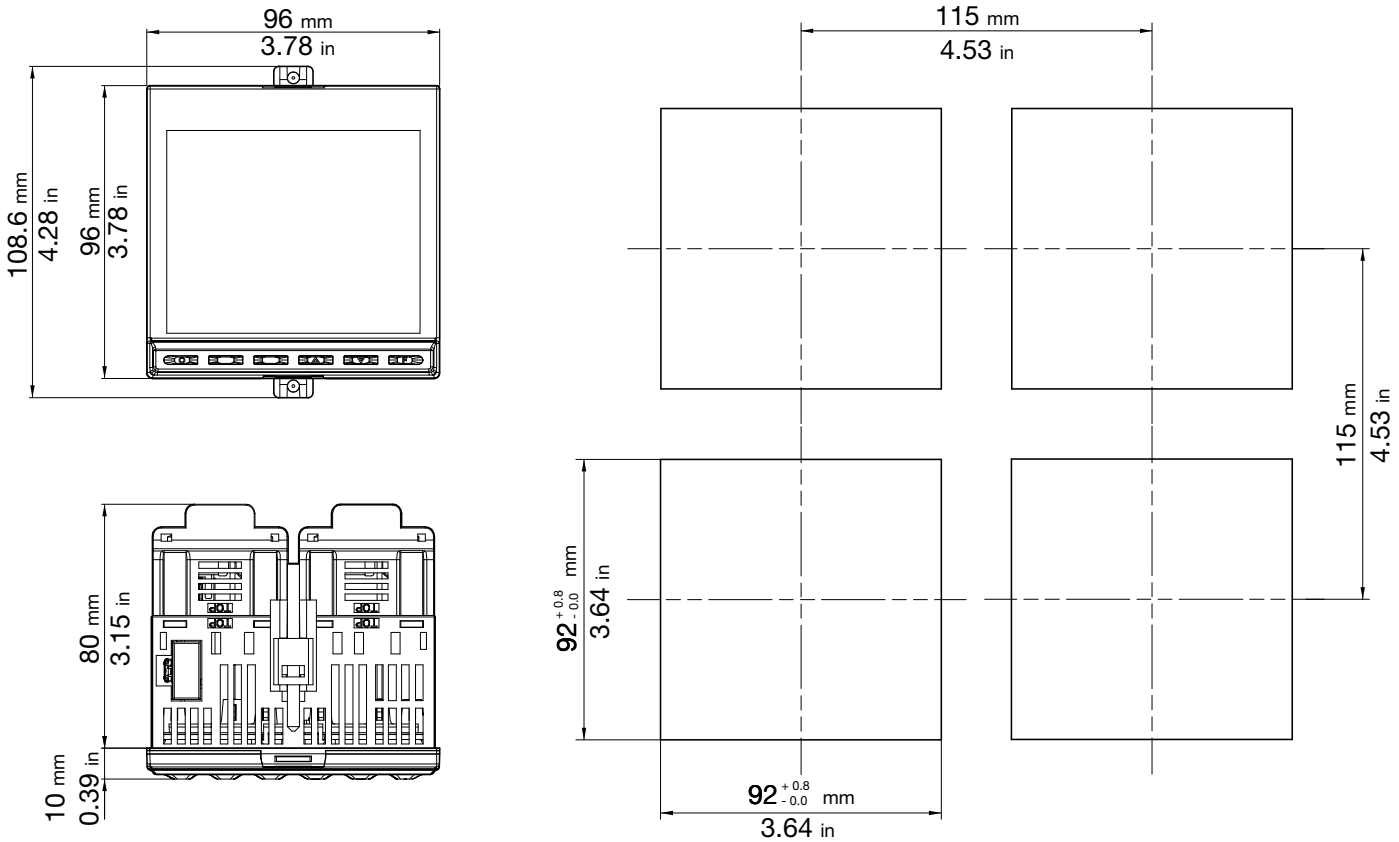
6140/4140

Temperature & Process Controllers *(cont'd.)*

6140 DIMENSIONS AND DRILLING TEMPLATE



4140 DIMENSIONS AND DRILLING TEMPLATE



6140/4140

Temperature & Process Controllers *(cont'd.)*

6140 Standard Offering Order Table

Power Supply Voltage	Model	Inputs			Outputs					RS485	Logic functions	Total Number of Outputs
		Digital	CT	Remote Set point	Relay	Triac	SSR Driver	Analog I	Analog Retrans			
100-240V	**6140-R-R00-00000-1-G**				2							2 outputs
20-27V	6140-D-R00-00000-0-G				1		1					
100-240V	**6140-D-R00-00000-1-G**				1		1					
20-27V	**6140-D-R00-00101-0-G**		1		1		1			•		
100-240V	6140-C-R00-00000-1-G				1			1				
20-27V	6140-C-R00-00101-0-G		1		1			1		•		
100-240V	6140-C-R00-01011-1-G	1			1			1	1	•		3 outputs
100-240V	6140-R-RR0-00000-1-G				3							
100-240V	6140-R-RR0-00200-1-G		2		3							
100-240V	6140-C-RR0-00000-1-G				2			1				
100-240V	**6140-C-RR0-00101-1-G**		1		2			1		•		
100-240V	6140-C-DR0-00101-1-G		1		1		1	1		•		
20-27V	6140-C-RRR-10030-0-G	3		1	3			1		•		4 outputs

Bold Model Codes are Stocked

6140 Custom Model Build Table (5 Piece Minimum)

6140 – ☐ – ☐ ☐ ☐ – ☐ ☐ ☐ ☐ ☐ – ☐ – ☐ G

Output 1	
R	Relay, 5A 250VAC
D	SSR Driver, >10V
C	Analog, 4-20mA

Output 2-3-4	
R00	1 Relay
D00	1 SSR Driver
RR0	2 Relays
DR0	1 SSR, 1 Relay
RT0	1 Relay, 1 Triac
DT0	1 SSR, 1 Triac
RRR	3 Relays (5A Total)

Options	
00000	None
00100	1 CT Input
00200	2 CT Inputs
00120	1 CT, 2 Digital Inputs
00220	2 CT, 2 Digital Inputs
00101	1 CT, Modbus RS485
00201	2 CT, Modbus RS485
00030	3 Digital Inputs
00031	3 Digital, Modbus RS485
10030	3 Digital, Remote Setpoint
01030	3 Digital, Analog Retransmit
01011	1 Digital, Analog Retransmit, RS485

Supply	
0	20-27 Vac/dc
1	100-240Vac

Functions	
Blank	
LF	Logic Ops

6140/4140

Temperature & Process Controllers *(cont'd.)*

4140 Standard Offering Order Table

Power Supply Voltage	Model	Inputs			Outputs					RS485	Logic functions	Total Number of Outputs
		Digital	CT	Remote Set point	Relay	Triac	SSR Driver	Analog I	Analog Retrans			
100-240V	4140-R-R00-00000-1-G				2							2 outputs
100-240V	**4140-D-R00-00000-1-G**				1		1					
100-240V	4140-C-R00-10051-1-G	5		1	1			1		•		
100-240V	**4140-R-RR0-00000-1-G**				3							3 outputs
100-240V	4140-C-RR0-00000-1-G				2			1				
100-240V	4140-C-RR0-10051-1-G	5		1	2			1		•		
100-240V	4140-C-DR0-10050-1-G	5		1	1		1	1				
100-240V	4140-R-RRT-00000-1-G				3	1						4 outputs
100-240V	4140-C-DRR-00051-1-LFG	5			2		1	1		•	•	
20-27V	4140-C-DRR-11251-0-G	5	2	1	2		1	1	1	•		5 outputs
100-240V	**4140-C-DRR-11251-1-G**	5	2	1	2		1	1	1	•		

Bold Model Codes are Stocked

4140 Custom Model Build Table (5 Piece Minimum)

4140 – ☐ – ☐ ☐ ☐ – ☐ ☐ ☐ ☐ ☐ – ☐ – ☐ G

Output 1	
R	Relay, 5A 250VAC
D	SSR Driver, >10V
C	Analog, 4-20mA

Output 2-3-4	
R00	1 Relay
D00	1 SSR Driver
RR0	2 Relays
DR0	1 SSR, 1 Relay
RRT	2 Relay, 1 Triac
DRT	1 SSR, Relay, Triac
DRR	1 SSR, 2 Relays
RRR	3 Relays

Options	
00000	None
00200	2 CT Inputs
00150	1 CT, 5 Digital Inputs
00250	2 CT, 5 Digital Inputs
00101	1 CT, Modbus RS485
00201	2 CT, Modbus RS485
10051	Remote Setpoint, 5 Digital, RS485
01151	Retransmit, 1 CT, 5 Digital, RS485
11050	Remote Setpoint, Retransmit, 5 Digital
10151	Remote Setpoint, 1 CT, 5 Digital, RS485
11251	Remote, Retransmit, 1 CT, 5 Digital, RS485

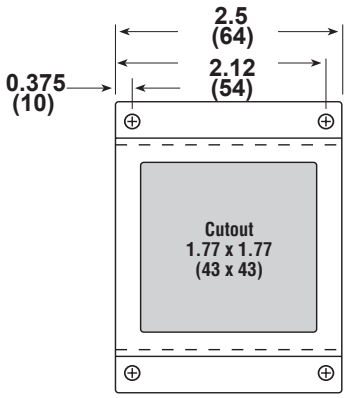
Supply	
0	20-27 Vac/dc
1	100-240Vac

Functions
Blank
LF Logic Ops

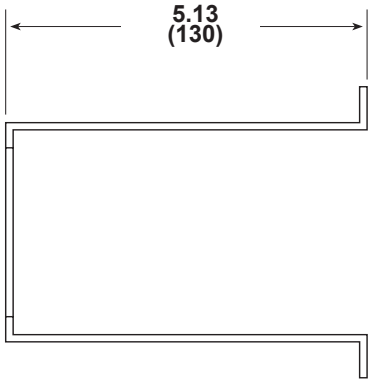
6140/4140
Surface Mount Brackets *(cont'd.)*

Dimensions in Inches and (mm)

1/16 DIN Surface Mounting, Part No. 0006-12154, PCN 305218

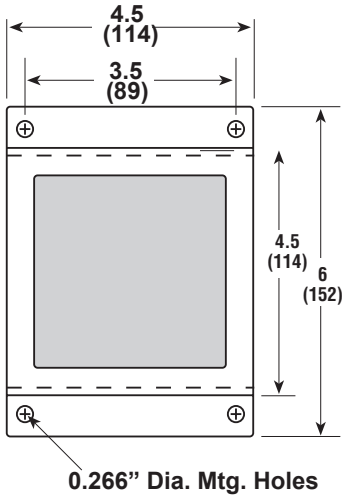


Front View

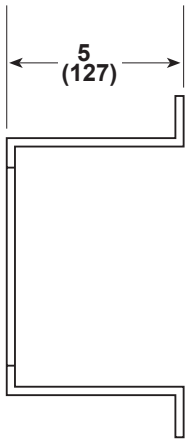


Side View

1/4 DIN Surface Mounting, Part No. 0006-12151, PCN 317980



Front View



Side View