CONTROLS

1040

DIN Rail Multiple Loop Temperature & Process Controller

- Compact DIN Rail-Mount System
- 4 Fieldbus Communication Port Options
- 1-, 3-, or 4-Loop Configurations per Module
- Heater Break Alarm Feature
- Hot Swap with Auto-Detection and Configuration
- Detachable Modules Optimized for Easy Maintenance and Wiring
- Windows* PC Configuration Software
- Loop Enable/Disable
- Detects Broken Process Sensor Input
- Optional Configuration Software
- UL, cUL & CE
- 3 Year Warranty

Description

The Chromalox 1040 is a DIN-rail-mounted multiloop PID control system that can operate in a stand-alone system or in a PLC environment. Its simplicity is based on its modular construction: one communications module and any combination of up to 8 control modules. With numerous state-of-the-art control features and 100 ms realtime scan rates, reliable single-loop control performance and integrity are never sacrificed.

The communications module is a supervisory module connected directly to the DIN rail. It provides power to the control modules and contains a back-up of the system configuration data. It also manages the communications with external devices.

The control modules are independently managed by the communications module. They are connected to the DIN rail via an interconnect module that provides power and communications from the communications module.

The communications module is available in any of four different protocol options: ModBus, DeviceNet, PROFIBUS and ModBus/TCP.

The control modules are available with 1, 3, and 4 loops. Therefore, using from one to a full complement of 8 control modules, any number of loops—from 1 to 32—can be achieved. If more than 32 loops are required, multiple systems can be linked together.

Heater break inputs are available on 1- and 3-loop modules.

With the Chromalox 1040 control system only the loops required need to be purchased.

Advantages

- Space Saving Footprint
- Reduced Installation Time and Cost
- Rapid, Easy Setup
- Improved Performance vs. PLC/PC
- True, Simple Integration into Existing Control Systems
- Rapid Hot-Swap and Auto Configure
- Minimize Risk of Loss or Damage

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DIN Rail Multiple Loop Temperature & Process Controller *(cont'd.)*

Communication Module	
Configuration Port	Chromalox PC configuration protocol for connection to the Chromalox 1040 configuration software.
ModBus Port	Connects to a ModBus RTU fieldbus system.
Protocol	ModBus RTU on a RS485 physical layer.
Configuration	Data rate: 4800, 9600, 19200. Parity: none, even or odd. Configured using the Chromalox 1040 configuration software.
DeviceNet Port	Connects to a DeviceNet fleldbus ststem.
Protocol	DeviceNet Class 2 slave device.
Configuration	Data Rate 125 kbps, 250 kbps, or 500 kbps. MAC ID 0 to 63 (Defaults 125 kbps, ID 63). Configured using the Chromalox 1040 configuration software, via the configuration port .
PROFIBUS Port	Connects to a PROFIBUS fleldbus system.
Protocol	PROFIBUS DP slave device.
Configuration	Data Rate automatically detected by communication modules from 9.6 kb ps, 19.2 kbps, 45.4 kbps, 93.75 kbps, 1 87.5 kbps, 500 kbps, 1.5 Mbps, 3 Mbps, 6 Mbps, and 12 Mbps.
Profibus Address	0 -126 (Default = 126). Configured using the Chromalox 1040 configuration software, via the configuration port.
ModBus/TCP Port	Connects to a ModBus/TCP fleldbus system.
Mounting	DIN rail mounting via supplied interconnect module. Fits DIN standard EN50022, DIN46277-3.
Protocol	ModBus TCP/IP slave device.
Configuration	10/100 Base T, user-definable IP address. Configured using the Chromalox 1040 configuration software via the configuration port.
Operating Environmental	
Temperature & RH	32° to 131°F (0° to 55°C), -4° to 176°F (-20° to 80°C) storage, 30% to 90% RH non-condensing.
Power Supply	18 to 30 Vdc (inc ripple). 25 W max.
Protection	IEC IP20. Designed for installation in an enclosure sealed against dust and moisture.
Approvals and Certifications	EMC: Certified to EN61326-1:2006. Safety: Complies with EN61 010-1:2010. UL & cUL. Has received ODVA Declaration of Conformity for DeviceNet.

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Loop Control Module	
Process Input	One, three or four loops, temperature or DC process input. Type and scale user selectable.
Temperature	Thermocouple Types: B,N,E,J,R,K,S,L,T. RTD Types: 3-wire PT100, NI 120.
Measuring Accruacy	0 to 20 mA 4 to 20 mA, 0 to 50 mV, 10 to 50 mV, 0 to 5 V, 1 to 5 V, 0 to 10 V, 2 to 10 V. Scaleable -32000 to +32000.
Input Sample Rate	10 Hz (100 msec) for all loops
Heater Break Alarm	Optional, Compares actual heater current to nominal. Alarms for High/low current or S/C output
Heater Current Input	0 to 50 mA, 0 to 60 mA, Sinusoidal rms, from current transformer. Scaleable 0.1 to 100 A ac.
Outputs	
Relay Outputs	Contact Type: Single pole single throw (SPST). Rating: 2 A resistive @120/240 VAV Lifetime: >500,000 operations at rated voltage/current
SSR Drive Outputs	Drive Capability: 12 Vdc nominal (10 Vdc minimum), at up to 20 mA
Linear Output	Optional. Resolution: 8 bits in 250 msec, (10 bits in 1 second typical). Accuracy +0.25% (mA into 250 ohm load, V into 2 kohm load). Degrading linearity to +0.5% for increasing burden to maximum drive capacity (500 ohm).
Output Useage	Any output can be assigned as any control or alarm output for any of the loops in the loop control module.
Environmental Specifications	
Supply Voltage	Powered by the communications module within its operating condition
Temperature & RH	32° to 131°F (0° to 55°C), -4° to 176°F (-20° to 80°C) storage, 30% to 90% RH non-condensing.
Dimensions	7/8 In. (22mm) W, 3-7/8In. (100mm) H, 4-3/4 In. (120mm) D.
Weight	0.33 lb (0.15 kg).
Mounting	DIN rail mounting via supplied interconnect module. Fits DIN standard EN50022.

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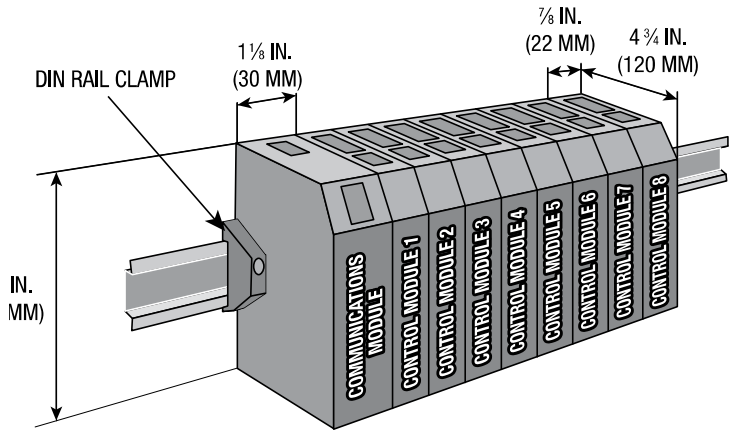
DIN Rail Multiple Loop Temperature & Process Controller *(cont'd.)*



Communication Module

Part Number	Communication Platform
1040-M B	ModBus RTU/RS485
1040-D N	DeviceNET
1040-P B	Profibus
1040-M T	ModBus TCP/IP

Loop Control Module

Part Number	Loop Description	
	Inputs	Outputs
1040-120000	1 Universal	2 SSR/Relay (Selectable)
1040-120010	1 Universal	2 SSR/Relay (Selectable), 1 Linear or 3 SSR/Relay (Selectable)
1040-120011	1 Universal, 1 Heater Break	2 SSR/Relay (Selectable), 1 Linear or 3 SSR/Relay (Selectable)
1040-300601	3 Universal, 1 Heater Break	6 Relay
1040-306001	3 Universal, 1 Heater Break	6 SSR
1040-304000	3 Universal, 1 Heater Break	3 SSR, 3 Relay
1040-400600	4 Universal	6 Relay
1040-406000	4 Universal	6 SSR
1040-404200	4 Universal	4 SSR, 2 Relay

Accessories

Part Number	Description
0149-50082	Configuration Software, Cable & Manual
0149-50071	Current Transfomer for Heater Break Alarm (HBA) 0 - 25 A
0149-50072	Current Transfomer for Heater Break Alarm (HBA) 0 - 50 A
0149-50073	Current Transfomer for Heater Break Alarm (HBA) 0 - 100 A