Controls

C4-IR
Advanced Multi-Loop SCR Power Controller

- **DIN Rail or Panel Mount**
- **30, 60, or 80KW Solid State Relay (Higher Amperages are Possible with C4X)**
- **4 Main Universal Inputs**
- **4 Heat/Cool Independent PID Loops**
- **4 Main Outputs Internally Wired to SSR**
- **4 Configurable Output Options Including Relay, Logic, TRIAC, Continuous**
- **Current Transformers on each Loop**
- **2 Configurable Relay Alarm Output**
- **2 Digital Inputs**
- **Zero Cross, Burst Firing, Half Single Cycle, and Phase Angle Firing Modes**
- **Load Connections in Single Phase, Dualphase, and Three Phase**
- **Standard ModBus RTU Communication**
- **8 Optional Fieldbus Communications Including Modbus RTU, Modbus/TCP, Profibus, Profinet, Ethernet IP, DeviceNet, EtherCat, and CANopen Available**
- **Powerful C-PWR Configuration Software**
- **Optional Fuse Holder with Fast Acting Fuses for 30KW and 60KW models**
- **Compact Footprint**
- **UL, cUL, CE Marking**

Description

The C4-IR Series Multiple Zone SCR Power Controller manages both single phase and 3-phase industrial heating load applications which require zero cross, burst firing, half single cycle, and phase angle firing modes. Load options include up to 4 independently controlled single phase loads or two 3-phase/2-Leg load or one 3- phase/3-leg load (with or without an additional single phase load).

The controller features four universal main process inputs, two digital inputs, and two configurable alarm outputs as standard to accommodate a variety of process needs. When more flexibility is required, the C4-IR controller can be customized with four analog inputs, and up to four configurable outputs.

Despite the four independent zones, the C4-IR still boasts a compact footprint, with options for either DIN rail mounting or direct panel mount.

Communications

Modbus RTU/RS485 communications are outfitted by default, but with PLC's and integrated networks being commonplace, the C4-IR can host a number of additional fieldbus communications including Modbus TCP, Profibus, ProfiNet, Ethernet IP, DeviceNet, EtherCat, and CANopen. Each of these fieldbus cards can be installed at time of order or outfitted at a later date. This makes it extremely easy to adapt the C4-IR to any host network.

Complete Process Control Package

While the C4-IR includes diverse process control capability, it also features efficient thermal and electrical monitoring, allowing users to anticipate failures and malfunctions so corrective steps can be taken in a timely manner.

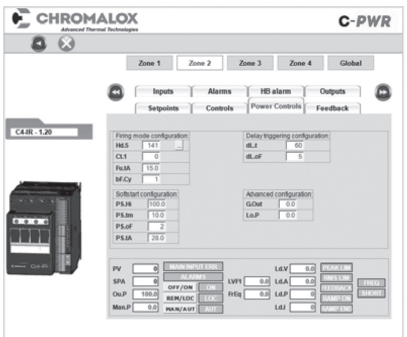
With feedback from current transformers on each zone, full diagnostics of current, voltage, and temperature can be performed including loop break alarm, heater break, SSR short circuit, input opening or short circuit, and even over temperature alarm.

The C4-IR also features the powerful and detailed C-PWR configuration software, which allows you to run trends, save historical data and read or write device parameters quickly and easily. Configurations may be saved locally for later retrieval or sent across a network for cloning of other units. This significantly reduces mistakes and system setup time.

Applications

- Thermoforming
- Hot runners for injection presses
- Fiber Weaving
- Wood-working machines
- Heat treatment
- Glass hardening furnaces

And many more…



CONTROL PRODUCTS

C4-IR

Advanced Multi-Loop SCR Power Controller *(cont'd.)*

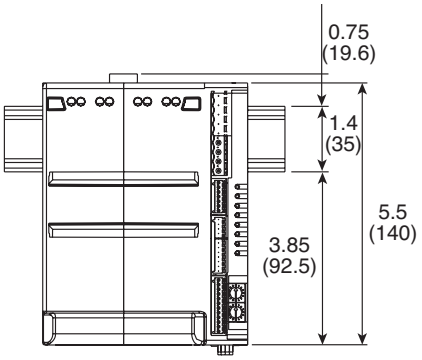
C4-OP Local Programming Interface

The C4-OP local interface display is a great tool to use when remote programming or monitoring isn't enough. It is comprised of a Lexan membrane, IP65 display, including three 4-digit displays, and a 2-digit display. A total of 6 function keys allow navigation through the C4-OP software menus and adjustment of process parameters on the spot.

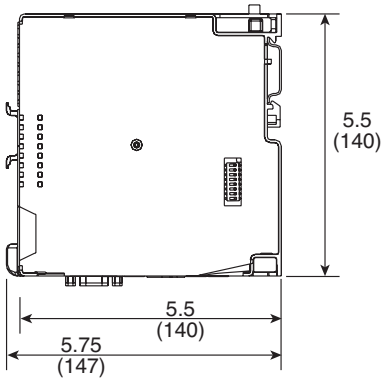
Its built-in memory gives users the ability to save complete configurations for up to ten C4 family devices, which can then be uploaded to a PC for seamless integration with the C-PWR software. The opposite is also true if users prefer to download C-PWR settings on to the C4-OP, making this controller an ideal addition for routine plant maintenance where local programming and monitoring is necessary.

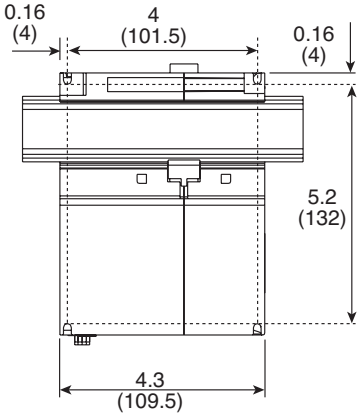
With no external power requirements, the C4-OP is powered directly from the C4 host device and can either be DIN rail mounted, or installed directly on the front panel of the enclosure where permanent installations are required. With its minimal footprint, the C4-OP continues the compact trend of the C4 family.

C4-IR Dimensions, In. (mm)

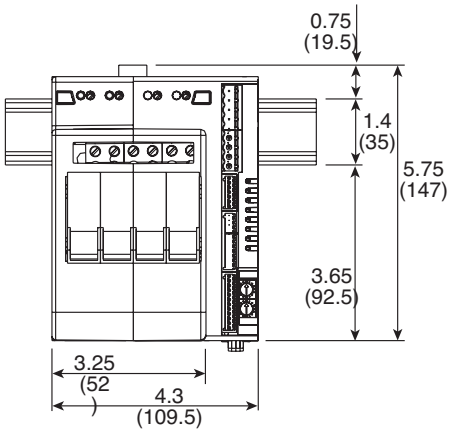


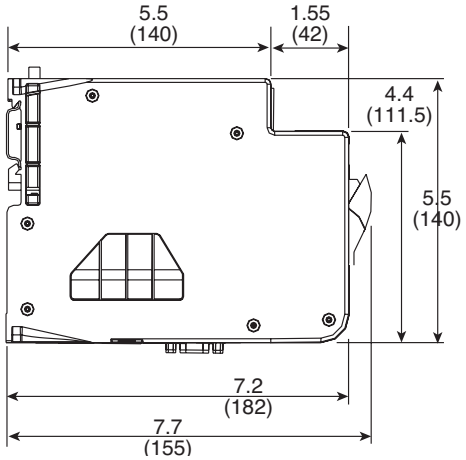
Without Fuse Holder

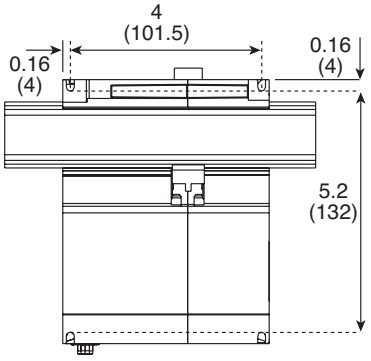




With Fuse Holder







C4-IR

Advanced Multi-Loop SCR Power Controller *(cont'd.)*

Electrical Specifications

Size	Current (Amp)	Voltage (Vac)			Power	
	Max Per Channel	Range	Nominal	Working	Total	Single Channel
30 (4 x 16A)	16	24...530	480	110	7.0	1.7
				230	14.7	3.6
				400	25.6	6.4
				480	30.7	7.6
60 (4 x 30A)	30	24...530	480	110	13.2	3.3
				230	27.6	6.9
				400	48.0	12.0
				480	57.6	14.4
80 (4 x 40A)	40	24...530	480	110	17.6	4.4
				230	36.8	9.2
				400	64.0	16.0
				480	76.8	19.2

1) For amperages in excess of 40A, refer to C4X

Specifications

Power	
Thermocouple	J, K, R, S, T
RTD	3 Wire PT100
DC Linear	0 to 20mA, 4 to 20mA, 0 to 60mV, 12 to 60mV, 0 to 1V, 0.2 to 1V
Accuracy	Thermocouple ±0.2% of full range ±1 LSD. PT100 ±0.2% of full range, ±1LSD, Linear±0.2% of full range, ±1LSD
Sampling	120msec the four inputs
Impedance	>1MΩ resistive, except DC mA (50Ω) and Thermoresistance (20Ω)
Selectable Range	°C/°F
Digital Input	PNP, 24VDC, 8mA (isol. 3500V)
CT Input	50mAac, 50/60Hz, 10Ω
CT Sampling	60msec, 1% of full range ±1 LSD
Outputs 1-4	
Function	Default heating control. Outputs connected to solid state relay
Outputs 5-8	
Connector	J1
Relay	NO, max 3A, 250V/30VDC, cosϕ = 1, resistive load
Logic	24Vdc, 35mA
Voltage	0 to 10V, 2 to 10V, max 25mA Short Circuit Protection
Current	0 to 20mA, 4 to 20mA, 500Ω max
Insulation	3500V
TRIAC	230V/4A AC51, 1A for four, 2A for two
Outputs 9-10	
Connector	J1
Relay	NO, max 5A, 30 Vdc, cosϕ = 1,
Operating Conditions	
Protection	IP20
Work/Storage Temperature	32 - 122˚F (0 - 50˚C) / -4 - 158˚F (-20 - 70˚C)
Ambient Conditions	20-85% UR not condensing
Installation	DIN EN50022 RAIL / Panel Mount with Screws
Weight	Without Fuses = 1200g / With Fuses = 1600g

C4-IR

Advanced Multi-Loop SCR Power Controller *(cont'd.)*

Ordering Information

To Order — Complete the Model Number using the Matrix provided.

Model	C4-IR SCR Power Controller
C4-IR	

Code	Current Per Loop @ 40˚C (104˚F) Ambient, continuous service (110 Vac to 480 Vac)[3]
164	16 Amps/Loop
304	30 Amps/Loop
404	40 Amps/Loop

Code	Auxiliary Outputs
0	None
R	Relay
D	Logic
A	Analog
T	Triac

Code	Auxiliary Inputs
0	None
4	4 Linear Inputs[1]

Code	Fusing
0	None
F	Fuse Holder & Extra rapid fuses[2]

Code	Second Fieldbus Option
00	None
MR	Modbus RTU (RS485)
ET	Modbus TCP/Ethernet
ER	Ethernet IP, Real Time[1]
PB	Profibus DP
PN	ProfiNET[1]
EC	EtherCAT[1]
CN	CANopen
DN	DeviceNet
EM	Euromap 66

C4-IR-	304	D	4-	F	00	Typical Model Number

[1]Not available with EC, PN & ER Fieldbus Codes.
[2]Not available with 404 Current Code
[3]For higher amperages, refer to C4-IRX

Accessories

Description	PCN
Communication Cable, USB to TTL	309171
Communication Cable, USB to RS485	309180