



# Watlow's New WATCONNECT® Control Panels are Quickly Configured for Standard Two-Week Delivery

Watlow® is now offering WATCONNECT® standard control panels that are quickly configured to your specific application requirements and delivered within two weeks. WATCONNECT panels integrate Watlow's high-quality heater, sensor, temperature controller and power controller products for a complete thermal solution. Normally, competitive custom panels require significantly longer lead times. The broad range of standard features allow customers to quickly configure panels that usually would be considered custom for delivery within two weeks.

Watlow's customers will be impressed with the speed and ease of specifying, selecting, pricing, ordering and delivery. WATCONNECT panels are flexible and scalable; there are thousands of configurable, pre-engineered panel solutions available.

## Features and Benefits

### Full documentation provided for all WATCONNECT control panels at the time of quotation

- Eliminates lengthy approval process and phone calls

### Watlow's F4T process controllers provide data logging and Ethernet

- Provides real time and historical data management of process parameters

### Range of standard input / output (I/O) options

- Provide the user with a higher level of monitoring and control, assuring an efficient and safe operation (See *Communications Interface Chart* on page 4.)

### WATCONNECT enclosure easily mounts to wall or frame

- Decreases installation time



### Bottom, right and top power entries

- Provides multiple options for accessing and making connections to the inside of the panel

### IP-20 finger-safe construction

- Decreases chance of electrical shock for service and maintenance personnel

### Fast acting fuses

- Protects sensitive solid state components from damaging currents

### Available illuminated E-Stop

- Allows quick emergency shut down

### Variety of cooling options

- Suited for a wide range of environmental conditions

### Carbon steel and stainless steel enclosure materials available

- Offers materials that are most economical for the user's application

### Supports a wide variety of sensor inputs including ASTM thermocouple types J, K and T, 3 wire 100 ohm RTD and 4 to 20mA process input

- Provides the customer a variety of process signals to ensure compatibility with field equipment





**WATCONNECT Standard Control Panels Include:**

- UL®/cUL® listed control panels for installation in indoor/outdoor and non-hazardous/hazardous locations
- Wall or frame mount enclosures with hinged door, sized to accommodate one to four branch circuits and top, side or bottom power entry
- Limited access and increased safety through the use of tool operated, ¼ turn, mechanical latches that secure the hinged door to the enclosure
- Molded case circuit breaker disconnect with through-door interlocked handle and lock out/tag out functionality (provides enhanced safety)
- Fused branch circuit protection ensures protection of system load and panel components
- DIN-A-MITE® C series solid state SCR power switching controller(s) with zero cross output firing and touch-safe terminals provide outstanding reliability
- Through wall heat sink(s) reduces ambient temperatures within the enclosure
- Independent high temperature limit control(s) ensures safety and protection of the equipment being controlled
- Safety mechanical contactor(s) removes power to system load in the event of a high limit and/or safety situation
- Process controllers come pre-programmed for the configured options and operation, reducing overall set-up time

- Operator interface features:
  - Illuminated control power on/off switch (one per panel) for increased visibility of control status (status determination at a glance)
  - Illuminated heater on/off switch(s) (one for each control loop) for increased visibility of heater power status (status determination at a glance)
  - Illuminated heater high temperature light with momentary push to reset (allows reset of all limit controls without the necessity of opening the enclosure door)
  - Watlow process temperature control coupled with the DIN-A-MITE power switching controller provide superior thermal performance through tight process temperature control
- Z-type purge system with environmental window and temperature regulation on hazardous location panels
- Remote inputs/outputs based on process controller selection
- Field upgradable (most options)

**Agency Approvals**

- Preconfigured and certified to UL® Standard 508A for non-hazardous locations
- Non-hazardous panels certified to one or more of the following:
  - Type 4, 4X, 1, 12 and IP65
- Hazardous location panels certified for UL® Listed installation, investigated to NFPA 496: 2008 and UL®698A and cUL® Listed, investigated to NFPA 496: 208 and CAN/CSA 22.2

**Cooling Requirements Charts**

SERIES C2 (Small Non-Hazardous)						
Panel Configuration			Ambient Temperatures		Cooling Requirements	
Total Number of Branch Circuits	FLA/Branch Circuit (Total Load)*	Enclosure Material	Min. Ambient Operating Temp.	Max. Ambient Operating Temp.	Cooling Needs	Restrictions
1	24A (load <= 24A)	Carbon steel	-18°C	40°C	None	None
1	24A (load <= 24A)	SS	-18°C	35°C	None	No F4T
1	48A (load <= 48A)	Carbon steel	-18°C	30°C	None	No F4T
1	48A (load <= 48A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
2	24A (load <= 48A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
2	48A (load <= 96A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None

\*FLA = Full Load Amps/Branch Circuit, Total Load = (# Branch Circuits) x (Full Load Amps/Branch Circuit)

SERIES C4 (Medium Non-Hazardous)						
Panel Configuration			Ambient Temperatures		Cooling Requirements	
Total Number of Branch Circuits	FLA/Branch Circuit (Total Load)*	Enclosure Material	Min. Ambient Operating Temp.	Max. Ambient Operating Temp.	Cooling Needs	Restrictions
1	24A (load <= 24A)	SS	-18°C	35°C	None	No F4T
1	24A (load <= 24A)	SS	-10°C	40°C	Fans/shrouds	No F4T
1	24A (load <= 24A)	Carbon steel	-18°C	40°C	None	None
1	48A (load <= 48A)	Carbon steel	-18°C	30°C	None	No F4T
1	48A (load <= 48A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
2	24A (load <= 48A)	Carbon steel	-18°C	30°C	None	No F4T
2	24A (load <= 48A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
2	48A (load <= 96A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
3	24A (load <= 72A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
3	48A (load <= 144A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
4	24A (load <= 96A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None
4	48A (load <= 192A)	Carbon steel or SS	-10°C	35°C	Fans/shrouds	None
4	48A (load <= 192A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	No F4T
4	48A (load <= 168A)	Carbon steel or SS	-10°C	40°C	Fans/shrouds	None

\*FLA = Full Load Amps/Branch Circuit, Total Load = (# Branch Circuits) x (Full Load Amps/Branch Circuit)

SERIES C3 and C5 (Hazardous Area) Panels		
Air Required	SERIES C3 (Small)	SERIES C5 (Medium)
PSIG	80-120*	100-120*
SCFM	25-30	40-80

\*Available air flow and pressure to the panel must be sufficient to maintain stated SCFM.



### Configuration Options

Control Panel Size	SERIES	Hazardous Location	Total # of Control Loops or Zones	Total # of Branch Circuits in Panel	Voltage Supply	Total # (Type) of Process Controllers	Total Process + Limit Controllers	Notes and Restrictions
Small	C2	Non-Hazardous	1	1	240V, 480V or 600V 3-phase, 50/60Hz 4 wire (3 power, 1 ground)	Up to 2 (EZ-ZONE® PM6 or PM4, F4T)	Up to 4 (1 process w/up to 3 limits) or (2 process w/1 limit each)	1. Shorted SCR not available 2. See process controller and communications interface charts for available features
			1	2				
			2	2				
	C3	Hazardous Class 1, Div. 2, Groups B/C/D or Class 1, Zone 2, Groups IIA/IIB/IIC	1	1	240V, 480V or 600V 3-phase, 50/60Hz 4 wire (3 power, 1 ground) (external 120V single phase necessary for purge operation)	Up to 2 (EZ-ZONE PM6 or PM4, F4T)	Up to 4 (1 process w/up to 3 limits) or (2 process w/1 limit each)	1. Shorted SCR not available 2. See process controller and communications interface charts for available features
			1	2				
			2	2				
Medium	C4	Non-Hazardous	1	1	240V, 480V or 600V 3-phase, 50/60Hz 4 wire (3 power, 1 ground)	Up to 2 (EZ-ZONE PM4, F4T)	Up to 8 (up to 2 process + up to 3 limits for each control loop/zone)	See process controller and communications interface charts for available features
			1	2				
			1	3				
			1	4				
			2	2				
			2	4				
	C5	Hazardous Class 1, Div. 2, Groups B/C/D or Class 1, Zone 2, Groups IIA/IIB/IIC	1	1	240V, 480V or 600V 3-phase, 50/60Hz 4 wire (3 power, 1 ground) (external 120V single phase necessary for purge operation)	Up to 2 (EZ-ZONE PM4, F4T)	Up to 8 (up to 2 process + up to 3 limits for each control loop/zone)	See process controller and communications interface charts for available features
			1	2				
			1	3				
			1	4				
			2	2				
			2	4				

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UL® and cUL® are registered trademarks of Underwriter's Laboratories, Inc.



### Process Controller Chart

Available Options/Features	Available Process Controllers					Notes/Restrictions
	Small (C2 or C3 SERIES)			Medium (C4 or C5 SERIES)		
	EZ-ZONE PM6	EZ-ZONE PM4	F4T	EZ-ZONE PM4	F4T	
Integrated Limit	X	X	X	X	X	
Single Sensor or Outlet Control	X	X	X	X	X	
Cascade Process Control			X		X	Integrated limit not available with cascade or differential process control options
Differential Process Control			X		X	Integrated limit not available with cascade or differential process control options
Shorted SCR Detection					X	
Remote I/O (See Communications Interface Chart)		X	X	X	X	On EZ-ZONE PM4 - Remote set point feature (within Remote I/O) not available with integrated limit
Local Ethernet Connectivity			X		X	RJ45 Ethernet jack on door standard on all F4Ts
Remote Copper Ethernet Connectivity			X		X	Via optional Ethernet switch mounted within enclosure
Remote Copper/Fiber Ethernet Connectivity			X		X	Via optional Ethernet switch mounted within enclosure
<b>Total Number of Controllers Needed = Total Number of Control Loops or Zones</b>						

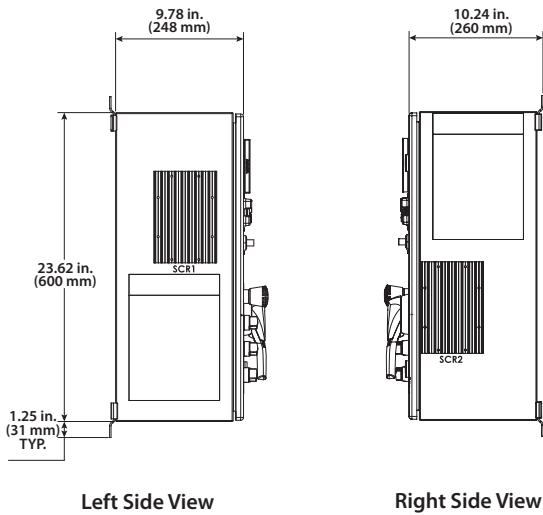
### Communications Interface Chart - Standard Features by Controller Type Chart

Function	Per Control Loop/ Zone or System	EZ-ZONE PM6 Process Controller	EZ-ZONE PM4 Process Controller	F4T Process Controller
Remote I/O: Dig In - Remote Shutdown	Per loop/zone		Std.	Std.
Remote I/O: Dig Out - Heater Hi Limit Status	Per loop/zone		Std.	Std.
Remote I/O: Dig Out - Heater Enabled Status	Per loop/zone		Std.	Std.
Remote I/O: Analog Out - Process Temp Retransmit	Per loop/zone		Std.	Std.
Remote I/O: Analog In - Remote Set Point	Per loop/zone		Std.*	Std.
Remote I/O: Dig Out - Common Alarm	System		Std.	Std.
Remote I/O: Dig Out - Purge Loss	System		Std.	Std.
Front RJ45 Ethernet Jack	System			Std.
Data Logging	System (per controller)			Std.
Standard Copper Remote Ethernet Connection	System			Available option
Fiber Remote Ethernet Connection	System			Available option
* <b>Note:</b> Remote SP not available with integrated limit.				



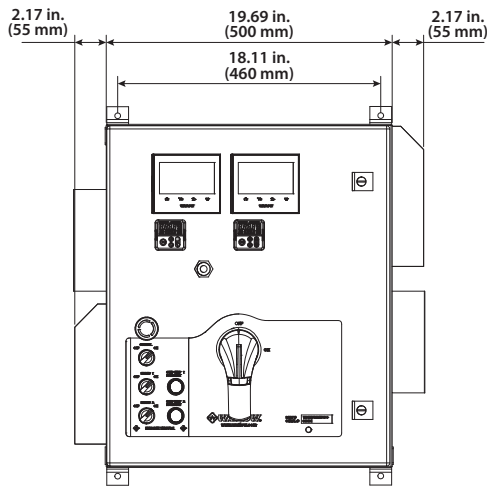
### Dimensional Drawings

#### C2 SERIES, Small, Non-Hazardous Location

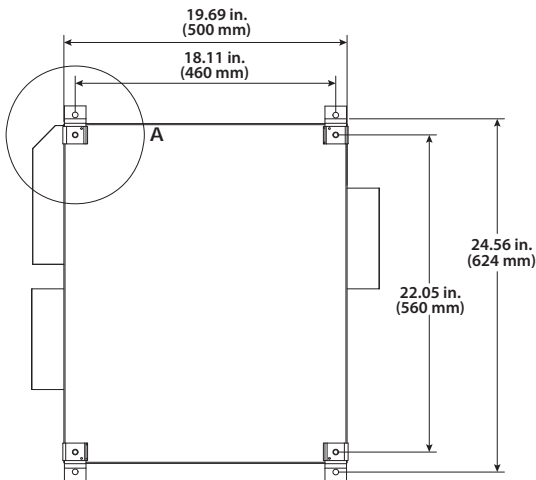


Left Side View

Right Side View

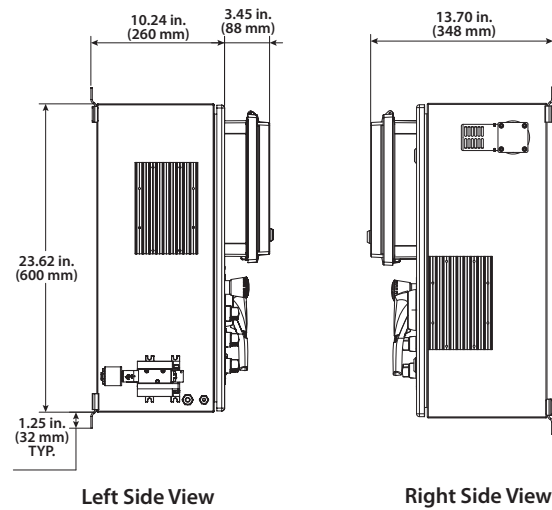


Front View



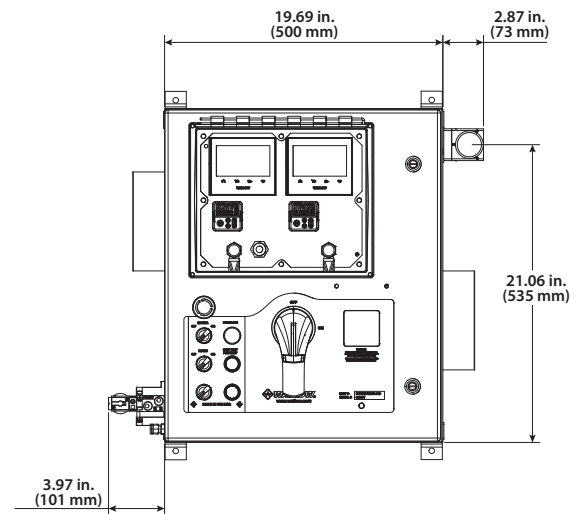
Rear View

#### C3 SERIES, Small, Hazardous Location

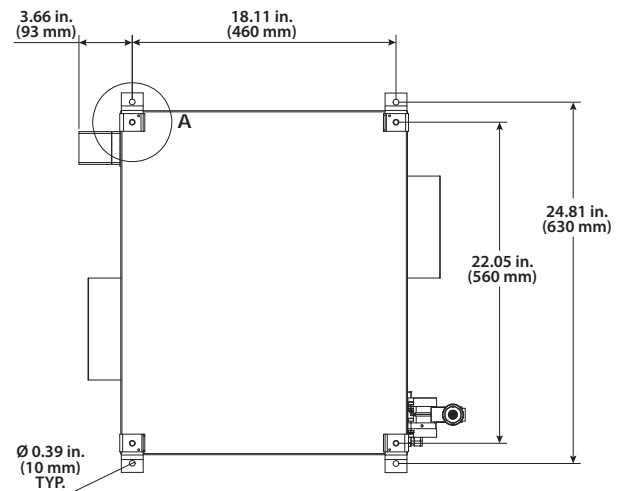


Left Side View

Right Side View



Front View

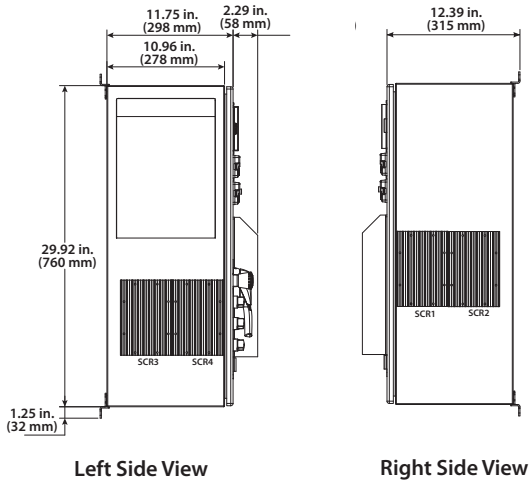


Rear View



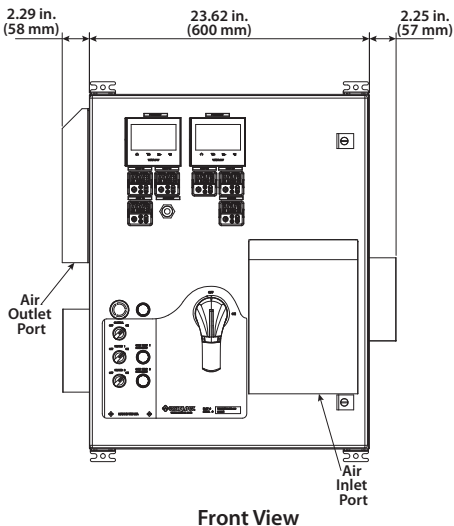
## Dimensional Drawings

### C4 SERIES, Medium, Non-Hazardous Location

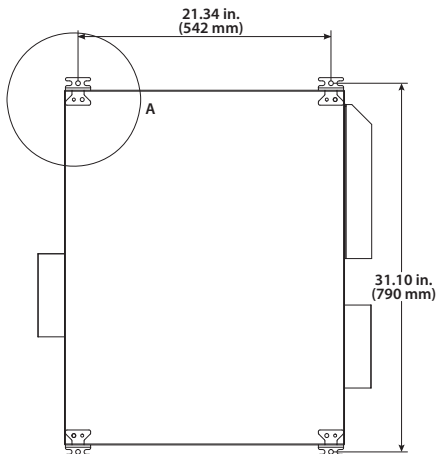


Left Side View

Right Side View

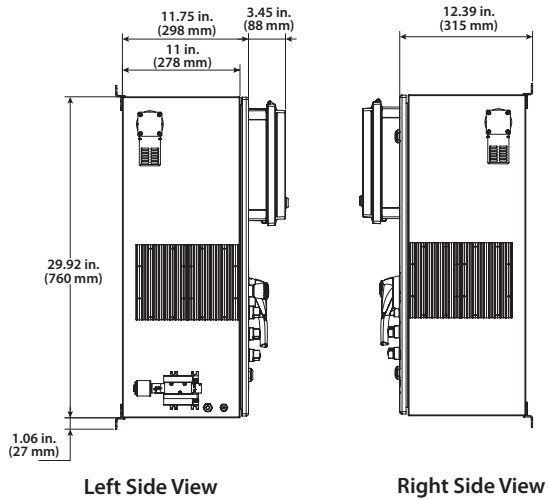


Front View



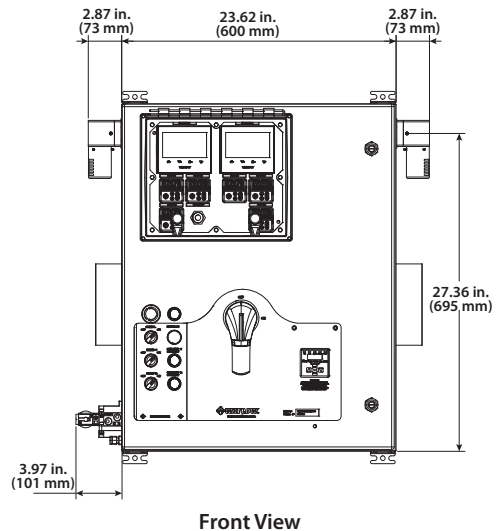
Rear View

### C5 SERIES, Medium, Hazardous Location

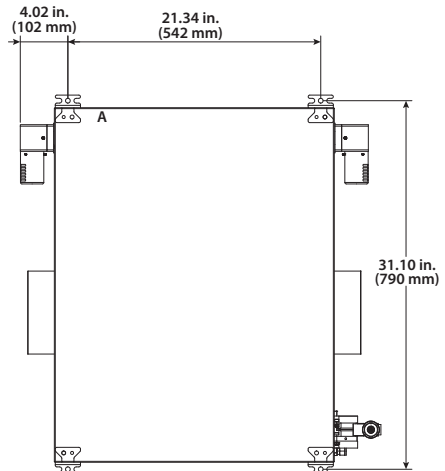


Left Side View

Right Side View



Front View



Rear View