

# Temperature, Limit or Process Controllers

## Winona, Minnesota

### Integrated Controllers

EZ-ZONE® EZK .....1  
 EZ-ZONE® PM Express .....2  
 EZ-ZONE® PM .....4  
 EZ-ZONE® RM .....9  
 EZ-ZONE® ST .....13

### Temperature, Limit or Process Controllers

SERIES 93 .....16  
 SERIES 94 .....18  
 SERIES 96 .....20  
 SERIES 97 .....22  
 SERIES 935 .....24  
 SERIES 981/982 .....26  
 SERIES 988/989 .....28  
 SERIES 988/989LF .....30  
 SERIES 998/999 .....32  
 SERIES CF .....34  
 SERIES CV .....35  
 SERIES LF .....36  
 SERIES LV .....37  
 SERIES TM .....38  
 SERIES F4S .....40  
 SERIES F4D .....42  
 SERIES F4P .....44  
 SERIES SD .....46

### Power Controllers

CZR .....66  
 DIN-A-MITE® .....68  
 E-SAFE® II Relay .....73  
 POWER SERIES .....74  
 QPAC .....76  
 SSR .....78

### Accessories/

Replacement Parts .....81

### Service and Repair Information

Catalog Products .....82

### Multi-Loop Controllers (Anafaze Discount Schedule Applies)

SERIES D8 .....85  
 TLM-8 .....87  
 CAS200 .....89  
 CLS200 .....91  
 MLS300 .....95  
 DAC/SDAC .....97  
 Demo Kits .....97  
 Multi-Loop Service .....98  
 Multi-Loop Spare Parts .....102

### Communication Accessories

Configuration Software .....104  
 Converters .....104  
 Converter Accessories .....104  
 EM GATEWAY .....105

### Software

SPECVIEW .....106  
 WATVIEW .....109

Manufacturing Facility  
 Address

Watlow  
 1241 Bundy Boulevard  
 P.O. Box 5580  
 Winona, Minnesota 55987-5580 USA  
**507-454-5300**  
**507-452-4507**  
**800-445-8992**  
**www.watlow.com**

**Phone**  
**FAX**

**Internet**

Plant Management	Contact	E-Mail	Phone Number or Extension
General Manager	Ray Feller	rfeller@watlow.com	Ext. 45393

Account Managers	Contact	E-Mail	Phone Number or Extension
Applications and Accounts Manager	Keith Koval	kkoval@watlow.com	Ext. 45324
Semiconductor, Aerospace, Power Generation, Telecom Industries and Military Industries	Bill Jesswein	bjesswein@watlow.com	Ext. 43325
Integrated System and Process, Packaging, Plastics and Photo Industries	Monica Dickson	mdickson@watlow.com	Ext. 45391
Food and Consumer Industries and HVAC	Jason Waters	jwaters@watlow.com	Ext. 45579
Analytical and Medical, Furnace and Oven and Chambers	Steve Burt	sburt@watlow.com	Ext. 45350
Distributors, All International and General Industries	Andy Borkowski	aborkowski@watlow.com	Ext. 45382

Technical Sales Support	Contact	E-Mail	Phone Number or Extension
Escalation	Keith Koval	kkoval@watlow.com	Ext. 45324

Customer Service, Order Entry, RMA Processing and Quoting	Contact	E-Mail	Phone Number or Extension
Escalation	Keith Koval	kkoval@watlow.com	Ext. 45324

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® EZK

To order, complete the code number  
to the right with the information below:

		<b>E Z K</b> -					
<b>Price:</b>		<b>EZK</b> = Universal EZ-ZONE accessory kit	_____				
\$ 110.00		<b>Remote User Interface (RUI)</b>	_____				
		B = Basic 1/6 DIN					
35.00		<b>Power Supply Voltage for Remote User Interface (RUI)</b>	_____				
NC		L = Low voltage 24-28V~(ac/dc)					
		H = Universal high voltage 100-240V~(ac/dc)					
		<b>Additional Communication Options*</b>	_____				
		<b>(Standard Bus Always Included)</b>	_____				
NC		A = None					
75.00		2 = EIA 232/485 Modbus® RTU					
125.00		3 = EtherNet/IP™/Modbus® TCP					
90.00		5 = DeviceNet™					
		6 = Profi®Bus (future option, contact factory for availability)					
		* Options 2 through 6 require the long case dimensions					
NC		<b>Custom Remote User Interface (RUI)</b>	_____				
Contact factory		AA = None					
		XX = Custom options					
		<b>Future Use</b>	_____				
		A = None					
		<b>Future Use</b>	_____				
		A = None					
		<b>PC Based Software</b> ®	_____				
		AA = None					

®Configurator PC software is available for free, download at [www.watlow.com](http://www.watlow.com).

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® PM EXPRESS PID model

Single universal input  
with dual displays and  
standard bus  
communications

To order, complete the code number  
to the right with the information below:

		<b>PM</b>			<b>- AAAAB</b>
<b>Price:</b>	<b>PM</b> = EZ-ZONE PM controller	_____			
\$ 145.00	<b>Package Size</b>	_____			
160.00	3 = 1/2 DIN				
	6 = 1/6 DIN				
	8 = 1/8 DIN vertical (future option)				
	9 = 1/8 DIN horizontal (future option)				
	4 = 1/4 DIN (future option)				
	<b>Primary Function</b>	_____			
NC	C = PID controller				
75.00	S = Custom firmware				
	<b>Power Supply</b>	_____			
NC	1 = 100 to 240V~(ac)				
35.00	3 = 20 to 28V~(ac) or 12 to 40V=(dc)				
	<b>Output 1 and 2 Hardware Options</b>	_____			
	<b>Output 1</b>		<b>Output 2</b>		
NC	CA = Switched dc/open collector		None		
35.00	CH = Switched dc/open collector		NO-ARC 15A power control (1/6 DIN only)		
25.00	CC = Switched dc/open collector		Switched dc		
30.00	CJ = Switched dc/open collector		Mechanical relay 5A, Form A		
25.00	CK = Switched dc/open collector		SSR Form A, 0.5A		
30.00	EA = Mechanical relay 5A, Form C		None		
65.00	EH = Mechanical relay 5A, Form C		NO-ARC 15A power control (1/6 DIN only)		
30.00	EC = Mechanical relay 5A, Form C		Switched dc		
60.00	EJ = Mechanical relay 5A, Form C		Mechanical relay 5A, Form A		
55.00	EK = Mechanical relay 5A, Form C		SSR Form A, 0.5A		
40.00	FA = Universal process		None		
40.00	FC = Universal process		Switched dc		
70.00	FJ = Universal process		Mechanical relay 5A, Form A		
65.00	FK = Universal process		SSR Form A, 0.5A		
25.00	AK = None		SSR Form A, 0.5A		
60.00	KH = SSR Form A, 0.5A		NO-ARC 15A power control (1/6 DIN only)		
50.00	KK = SSR Form A, 0.5A		SSR Form A, 0.5A		
	<b>Future Options</b>	_____			
NC	AAAA = None				
	<b>Menu Type</b>	_____			
NC	B = PM EXPRESS				
	<b>Additional Options</b>	_____			
NC	AA = Standard EZ-ZONE PM face plate				
NC	AB = EZ-ZONE logo, no Watlow name				
NC	AC = No logo, no Watlow name				
110.00	12 = Class 1, Div. 2 (not available with output types E, H or J)				
Contact factory	XX = Custom firmware, overlays, parameter settings				

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® PM EXPRESS Limit model

Single universal input with dual displays and standard bus communications

To order, complete the code number to the right with the information below:

			<b>PM</b>					<b>- AAAAB</b>
<b>Price:</b>	<b>PM</b> = EZ-ZONE PM controller		_____					
\$ 145.00	<b>Package Size</b>		_____					
160.00	3 = 1/2 DIN							
	6 = 1/6 DIN							
	8 = 1/6 DIN vertical (future option)							
	9 = 1/6 DIN horizontal (future option)							
	4 = 1/4 DIN (future option)							
	<b>Primary Function</b>		_____					
NC	L = Limit controller							
75.00	D = Custom firmware							
	<b>Power Supply</b>		_____					
NC	1 = 100 to 240V~(ac)							
35.00	3 = 20 to 28V~(ac) or 12 to 40V=(dc)							
	<b>Output 1 and 2 Hardware Options</b>		_____					
	<b>Output 1</b>					<b>Output 2</b>		
30.00	AJ = None					Mechanical relay 5A, Form A		
55.00	CJ = Switched dc/open collector					Mechanical relay 5A, Form A		
60.00	EJ = Mechanical relay 5A, Form C					Mechanical relay 5A, Form A		
	<b>Future Options</b>		_____					
NC	AAAA = None							
	<b>Menu Type</b>		_____					
NC	B = PM EXPRESS							
	<b>Additional Options</b>		_____					
NC	AA = Standard EZ-ZONE PM face plate							
NC	AB = EZ-ZONE logo, no Watlow name							
NC	AC = No logo, no Watlow name							
Contact factory	XX = Custom firmware, overlays, parameter settings							

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® PM PID Model

Single Universal Input  
with Dual Displays and  
Standard Bus  
Communications

To order, complete the code number  
to the right with the information below:

			<b>PM</b>					<b>- A A A A</b>
<b>Price:</b>	<b>PM</b> = EZ-ZONE PM controller							
\$ 145.00	<b>Package Size</b>							
160.00	3 = 1/2 DIN							
	6 = 1/6 DIN							
	<b>Primary Function</b>							
NC	C = PID controller							
75.00	R = Ramp and soak							
75.00	S = Custom firmware							
	<b>Power Supply, Digital I/O</b>							
NC	1 = 100 to 240V~(ac)							
25.00	2 = 100 to 240V~(ac) plus 2 digital I/O points							
35.00	3 = 20 to 28V~(ac) or 12 to 40V=(dc)							
60.00	4 = 20 to 28V~(ac) or 12 to 40V=(dc), plus 2 digital I/O points							
	<b>Output 1 and 2 Hardware Options</b>							
	<b>Output 1</b>							<b>Output 2</b>
NC	CA = Switched dc/open collector							None
35.00	CH = Switched dc/open collector							NO-ARC 15A power control (1/6 DIN only)
25.00	CC = Switched dc/open collector							Switched dc
30.00	CJ = Switched dc/open collector							Mechanical relay 5A, Form A
25.00	CK = Switched dc/open collector							SSR Form A, 0.5A
30.00	EA = Mechanical relay 5A, Form C							None
65.00	EH = Mechanical relay 5A, Form C							NO-ARC 15A power control (1/6 DIN only)
30.00	EC = Mechanical relay 5A, Form C							Switched dc
60.00	EJ = Mechanical relay 5A, Form C							Mechanical relay 5A, Form A
55.00	EK = Mechanical relay 5A, Form C							SSR Form A, 0.5A
40.00	FA = Universal process							None
40.00	FC = Universal process							Switched dc
70.00	FJ = Universal process							Mechanical relay 5A, Form A
65.00	FK = Universal process							SSR Form A, 0.5A
25.00	AK = None							SSR Form A, 0.5A
60.00	KH = SSR Form A, 0.5A							NO-ARC 15A power control (1/6 DIN only)
50.00	KK = SSR Form A, 0.5A							SSR Form A, 0.5A
	<b>Additional Communication Options, Standard Bus Always Included</b>							
NC	A = None							
60.00	1 = EIA 485 Modbus® RTU							
	<b>Additional Options</b>							
NC	AA = Standard EZ-ZONE PM face plate							
NC	AB = EZ-ZONE logo, no Watlow name							
NC	AC = No logo, no Watlow name							
110.00	12 = Class 1, Div. 2 (not available with output types E, H or J)							
Contact factory	XX = Custom firmware, overlays, parameter settings							

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® PM Limit Model

Single Universal Input  
with Dual Displays and  
Standard Bus  
Communications

To order, complete the code number  
to the right with the information below:

			<b>PM</b>					<b>-</b>			<b>AA AA</b>	
<b>Price:</b>	<b>PM</b> = EZ-ZONE PM controller											
\$ 145.00	<b>Package Size</b>	3 = 1/2 DIN										
160.00		6 = 1/6 DIN										
	<b>Primary Function</b>	L = Limit controller										
75.00		D = Custom firmware										
	<b>Power Supply, Digital I/O</b>	1 = 100 to 240V~(ac)										
25.00		2 = 100 to 240V~(ac) plus 2 digital I/O points										
35.00		3 = 20 to 28V~(ac) or 12 to 40V=(dc)										
60.00		4 = 20 to 28V~(ac) or 12 to 40V=(dc), plus 2 digital I/O points										
	<b>Output 1 and 2 Hardware Options</b>											
		<b>Output 1</b>								<b>Output 2</b>		
30.00	AJ = None									Mechanical relay 5A, Form A		
55.00	CJ = Switched dc/open collector									Mechanical relay 5A, Form A		
60.00	EJ = Mechanical relay 5A, Form C									Mechanical relay 5A, Form A		
	<b>Additional Communication Options, Standard Bus Always Included</b>											
	A = None											
60.00	1 = EIA 485 Modbus® RTU											
	<b>Additional Options</b>											
	AA = Standard EZ-ZONE PM face plate											
	AB = EZ-ZONE logo, no Watlow name											
	AC = No logo, no Watlow name											
Contact factory	XX = Custom firmware, overlays, parameter settings											

## Integrated Controllers

F.O.B.: Winona, Minnesota

### EZ-ZONE® PM Enhanced Limit Model

**Single Universal Input  
with Dual Displays and  
Standard Bus  
Communications**

To order, complete the code number  
to the right with the information below:

	<b>Price:</b>	<b>PM</b> = EZ-ZONE PM controller	<b>PM 6</b>		
\$ 160.00		<b>Package Size</b>	<b>6</b>		
		6 = 1/6 DIN			
		<b>Primary Function</b>	<b>L</b>		
NC		L = Limit controller			
75.00		D = Custom firmware	<b>D</b>		
		<b>Power Supply, Digital I/O</b>	<b>1</b>		
NC		1 = 100 to 240V~(ac)			
25.00		2 = 100 to 240V~(ac) plus 2 digital I/O points	<b>2</b>		
35.00		3 = 20 to 28V~(ac) or 12 to 40V=(dc)			
60.00		4 = 20 to 28V~(ac) or 12 to 40V=(dc), plus 2 digital I/O points	<b>4</b>		
		<b>Output 1 and 2 Hardware Options</b>	<b>AJ</b>		
		<b>Output 1</b>	<b>Output 2</b>		
30.00		AJ = None	Mechanical relay 5A, Form A		
55.00		CJ = Switched dc/open collector	Mechanical relay 5A, Form A		
60.00		EJ = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A		
		<b>Additional Communication Options, Standard Bus Always Included</b>	<b>A</b>		
NC		A = None			
60.00		1 = EIA 485 Modbus® RTU	<b>1</b>		
75.00		2 = EIA 232/485 Modbus® RTU			
125.00		3 = EtherNet/IP™/Modbus® TCP	<b>3</b>		
90.00		5 = DeviceNet™			
NA		6 = Profi®Bus DP (future option)	<b>6</b>		
		<b>Output 3 and 4 Hardware Options</b>	<b>AA</b>		
		<b>(If communications Options 2 thru 6 were ordered above, then Option AA must be ordered here)</b>			
		<b>Output 3</b>	<b>Output 4</b>		
NC		AA = None	None		
30.00		AJ = None	Mechanical relay 5A, Form A		
25.00		AK = None	SSR Form A, 0.5A		
25.00		CA = Switched dc/open collector	None		
50.00		CC = Switched dc/open collector	Switched dc		
55.00		CJ = Switched dc/open collector	Mechanical relay 5A, Form A		
50.00		CK = Switched dc/open collector	SSR Form A, 0.5A		
30.00		EA = Mechanical relay 5A, Form C	None		
55.00		EC = Mechanical relay 5A, Form C	Switched dc		
60.00		EJ = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A		
55.00		EK = Mechanical relay 5A, Form C	SSR Form A, 0.5A		
40.00		FA = Universal process	None		
65.00		FC = Universal process	Switched dc		
70.00		FJ = Universal process	Mechanical relay 5A, Form A		
65.00		FK = Universal process	SSR Form A, 0.5A		
50.00		KK = SSR Form A, 0.5A	SSR Form A, 0.5A		
		<b>Future Options</b>	<b>AA</b>		
		<b>Additional Options</b>	<b>AA</b>		
NC		AA = Standard EZ-ZONE PM face plate			
NC		AB = EZ-ZONE logo, no Watlow name			
NC		AC = No logo, no Watlow name			
Contact factory		XX = Custom firmware, overlays, parameter settings			

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® PM Integrated PID Controller Model

One or Two Universal Inputs with Dual Displays and Standard Bus Communications

To order, complete the code number to the right with the information below:

<p><b>Price:</b> PM = EZ-ZONE PM controller _____</p> <p>\$160.00</p> <p>NC 75.00 75.00</p> <p>NC 25.00 35.00 60.00</p> <p>NC 35.00 25.00 30.00 25.00 30.00 65.00 30.00 60.00 55.00 40.00 40.00 70.00 65.00 25.00 60.00 50.00</p> <p>NC 60.00 75.00</p> <p>NC 50.00 30.00 60.00</p> <p>NC 30.00 25.00 50.00 55.00 50.00 30.00 60.00 55.00 40.00 65.00 70.00 65.00 50.00</p> <p>NC 215.00</p> <p>NC 215.00</p> <p>NC 215.00</p> <p>215.00</p> <p>Contact factory</p>	<p><b>Package Size</b> _____</p> <p>6 = 1/6 DIN</p> <p><b>Primary Function</b> _____</p> <p>C = PID controller R = Ramp and soak S = Custom firmware</p> <p><b>Power Supply, Digital I/O</b> _____</p> <p>1 = 100 to 240V~(ac) 2 = 100 to 240V~(ac) plus 2 digital I/O points 3 = 20 to 28V~(ac) or 12 to 40V=(dc) 4 = 20 to 28V~(ac) or 12 to 40V=(dc), plus 2 digital I/O points</p> <p><b>Output 1 and 2 Hardware Options</b> _____</p> <table border="0"> <tr> <td style="text-align: center;"><b>Output 1</b></td> <td style="text-align: center;"><b>Output 2</b></td> </tr> <tr> <td>CA = Switched dc/open collector</td> <td>None</td> </tr> <tr> <td>CH = Switched dc/open collector</td> <td>NO-ARC 15A power control</td> </tr> <tr> <td>CC = Switched dc/open collector</td> <td>Switched dc</td> </tr> <tr> <td>CJ = Switched dc/open collector</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>CK = Switched dc/open collector</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>EA = Mechanical relay 5A, Form C</td> <td>None</td> </tr> <tr> <td>EH = Mechanical relay 5A, Form C</td> <td>NO-ARC 15A power control</td> </tr> <tr> <td>EC = Mechanical relay 5A, Form C</td> <td>Switched dc</td> </tr> <tr> <td>EJ = Mechanical relay 5A, Form C</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>EK = Mechanical relay 5A, Form C</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>FA = Universal process</td> <td>None</td> </tr> <tr> <td>FC = Universal process</td> <td>Switched dc</td> </tr> <tr> <td>FJ = Universal process</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>FK = Universal process</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>AK = None</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>KH = SSR Form A, 0.5A</td> <td>NO-ARC 15A power control</td> </tr> <tr> <td>KK = SSR Form A, 0.5A</td> <td>SSR Form A, 0.5A</td> </tr> </table> <p><b>Additional Communication Options, Standard Bus Always Included</b> _____</p> <table border="0"> <tr> <td>A = None</td> <td>3 = EtherNet/IP™/Modbus® TCP</td> </tr> <tr> <td>1 = EIA 485 Modbus® RTU \$125.00</td> <td>5 = DeviceNet™</td> </tr> <tr> <td>2 = EIA 232/485 Modbus® RTU 90.00</td> <td>6 = Profibus DP (future option)</td> </tr> </table> <p><b>Auxiliary Control Functions</b> _____ NA</p> <p>(If communications Options 2 thru 6 were ordered above then Option A must be ordered here)</p> <p>A = None R = Remote set point input T = Current transformer input (not valid Output 3 and 4 selections = FA, FC, FJ and FK) L = Integrated limit controller with universal input (only valid Output 3 and 4 selections = CJ, EJ and AJ)</p> <p><b>Output 3 and 4 Hardware Options</b> _____</p> <p>(If communications Options 2 thru 6 were ordered above, then Option AA must be ordered here)</p> <table border="0"> <tr> <td style="text-align: center;"><b>Output 3</b></td> <td style="text-align: center;"><b>Output 4</b></td> </tr> <tr> <td>AA = None</td> <td>None</td> </tr> <tr> <td>AJ = None</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>AK = None</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>CA = Switched dc/open collector</td> <td>None</td> </tr> <tr> <td>CC = Switched dc/open collector</td> <td>Switched dc</td> </tr> <tr> <td>CJ = Switched dc/open collector</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>CK = Switched dc/open collector</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>EA = Mechanical relay 5A, Form C</td> <td>None</td> </tr> <tr> <td>EC = Mechanical relay 5A, Form C</td> <td>Switched dc</td> </tr> <tr> <td>EJ = Mechanical relay 5A, Form C</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>EK = Mechanical relay 5A, Form C</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>FA = Universal process</td> <td>None</td> </tr> <tr> <td>FC = Universal process</td> <td>Switched dc</td> </tr> <tr> <td>FJ = Universal process</td> <td>Mechanical relay 5A, Form A</td> </tr> <tr> <td>FK = Universal process</td> <td>SSR Form A, 0.5A</td> </tr> <tr> <td>KK = SSR Form A, 0.5A</td> <td>SSR Form A, 0.5A</td> </tr> </table> <p><b>Future Options</b> _____</p> <p><b>Additional Options</b> _____</p> <p>AA = Standard EZ-ZONE PM face plate AB = EZ-ZONE logo, no Watlow name AC = No logo, no Watlow name 12 = Class 1, Div. 2 (not available with integrated limit option "L" or with output types E, H and J) XX = Custom firmware, overlays, parameter settings</p>	<b>Output 1</b>	<b>Output 2</b>	CA = Switched dc/open collector	None	CH = Switched dc/open collector	NO-ARC 15A power control	CC = Switched dc/open collector	Switched dc	CJ = Switched dc/open collector	Mechanical relay 5A, Form A	CK = Switched dc/open collector	SSR Form A, 0.5A	EA = Mechanical relay 5A, Form C	None	EH = Mechanical relay 5A, Form C	NO-ARC 15A power control	EC = Mechanical relay 5A, Form C	Switched dc	EJ = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A	EK = Mechanical relay 5A, Form C	SSR Form A, 0.5A	FA = Universal process	None	FC = Universal process	Switched dc	FJ = Universal process	Mechanical relay 5A, Form A	FK = Universal process	SSR Form A, 0.5A	AK = None	SSR Form A, 0.5A	KH = SSR Form A, 0.5A	NO-ARC 15A power control	KK = SSR Form A, 0.5A	SSR Form A, 0.5A	A = None	3 = EtherNet/IP™/Modbus® TCP	1 = EIA 485 Modbus® RTU \$125.00	5 = DeviceNet™	2 = EIA 232/485 Modbus® RTU 90.00	6 = Profibus DP (future option)	<b>Output 3</b>	<b>Output 4</b>	AA = None	None	AJ = None	Mechanical relay 5A, Form A	AK = None	SSR Form A, 0.5A	CA = Switched dc/open collector	None	CC = Switched dc/open collector	Switched dc	CJ = Switched dc/open collector	Mechanical relay 5A, Form A	CK = Switched dc/open collector	SSR Form A, 0.5A	EA = Mechanical relay 5A, Form C	None	EC = Mechanical relay 5A, Form C	Switched dc	EJ = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A	EK = Mechanical relay 5A, Form C	SSR Form A, 0.5A	FA = Universal process	None	FC = Universal process	Switched dc	FJ = Universal process	Mechanical relay 5A, Form A	FK = Universal process	SSR Form A, 0.5A	KK = SSR Form A, 0.5A	SSR Form A, 0.5A	<p style="text-align: right;"><b>PM 6</b> _____</p> <p style="text-align: right;">_____ - _____</p> <p style="text-align: right;">_____ <b>A</b> _____</p>
<b>Output 1</b>	<b>Output 2</b>																																																																													
CA = Switched dc/open collector	None																																																																													
CH = Switched dc/open collector	NO-ARC 15A power control																																																																													
CC = Switched dc/open collector	Switched dc																																																																													
CJ = Switched dc/open collector	Mechanical relay 5A, Form A																																																																													
CK = Switched dc/open collector	SSR Form A, 0.5A																																																																													
EA = Mechanical relay 5A, Form C	None																																																																													
EH = Mechanical relay 5A, Form C	NO-ARC 15A power control																																																																													
EC = Mechanical relay 5A, Form C	Switched dc																																																																													
EJ = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A																																																																													
EK = Mechanical relay 5A, Form C	SSR Form A, 0.5A																																																																													
FA = Universal process	None																																																																													
FC = Universal process	Switched dc																																																																													
FJ = Universal process	Mechanical relay 5A, Form A																																																																													
FK = Universal process	SSR Form A, 0.5A																																																																													
AK = None	SSR Form A, 0.5A																																																																													
KH = SSR Form A, 0.5A	NO-ARC 15A power control																																																																													
KK = SSR Form A, 0.5A	SSR Form A, 0.5A																																																																													
A = None	3 = EtherNet/IP™/Modbus® TCP																																																																													
1 = EIA 485 Modbus® RTU \$125.00	5 = DeviceNet™																																																																													
2 = EIA 232/485 Modbus® RTU 90.00	6 = Profibus DP (future option)																																																																													
<b>Output 3</b>	<b>Output 4</b>																																																																													
AA = None	None																																																																													
AJ = None	Mechanical relay 5A, Form A																																																																													
AK = None	SSR Form A, 0.5A																																																																													
CA = Switched dc/open collector	None																																																																													
CC = Switched dc/open collector	Switched dc																																																																													
CJ = Switched dc/open collector	Mechanical relay 5A, Form A																																																																													
CK = Switched dc/open collector	SSR Form A, 0.5A																																																																													
EA = Mechanical relay 5A, Form C	None																																																																													
EC = Mechanical relay 5A, Form C	Switched dc																																																																													
EJ = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A																																																																													
EK = Mechanical relay 5A, Form C	SSR Form A, 0.5A																																																																													
FA = Universal process	None																																																																													
FC = Universal process	Switched dc																																																																													
FJ = Universal process	Mechanical relay 5A, Form A																																																																													
FK = Universal process	SSR Form A, 0.5A																																																																													
KK = SSR Form A, 0.5A	SSR Form A, 0.5A																																																																													



## Integrated Controllers

F.O.B.: Winona, Minnesota

### EZ-ZONE® PM Panel Mount Controllers, PID Models, Limit Models, Enhanced Limit Models and Integrated Models

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when returning a product for credit.

**2. Custom Setup Parameters:**

- \$500 net one-time charge to fully document custom setup parameters.
- **Custom parameters \$10 list price adder.**
- 25 piece minimum order.

**3. Artwork / Private Label Charge:**

- \$700 net one-time charge for custom front panels in white only.
- \$250 net setup charge applies to orders of less than 10 pieces.

- Private label charge of \$5.00 list price adder.

**4. Software Modification Charge:**

- Consult factory for quote package and availability. **A \$50 net setup charge applies to orders of less than 10 pieces for controllers with custom software requirements.**
- **Custom software \$75 list price adder.**

### Replacement Parts/Accessories

Price	Part No.	Description
\$ 3.00	0822-0465-P000	1/2nd DIN mounting collar
25.00	0822-0586-P001	1/2nd DIN-rail mounting bracket
4.00	0822-0395-P000	1/6th DIN mounting collar
25.00	0822-0586-P002	1/6th DIN-rail mounting bracket
60.00	16-0246	Current transformer (0 to 50 Amp)
25.00	PMRXXXXXXXXXXXX Each X equals the original controller part number digits 3 through 14. There is no dash (-) in the connector assembly part number.	Connector assembly The connector assembly includes 2 or 3 connectors with termination labels installed as supplied with the original controller unit.
25.00	0219-0311-0000	EtherNet/IP™ cable adapter
175.00	0847-0251-0000	USB to EIA485 communications converter
6.00	0804-0147-0000	RC suppression - Quencharc®
450.00	DEMO-PM06-0001	1/6th DIN training demo unit
450.00	DEMO-PM06-0002	1/6th DIN training demo unit, 240V operation
4.00	0822-0395-P000	PID 1/2nd DIN mounting collar
4.00	0822-0465-P000	PID 1/6th DIN mounting collar
25.00	0822-0693-0000	1/2nd DIN case - no labels - includes gasket
25.00	0822-0696-0000	1/6th DIN case - no labels - includes gasket
8.00	0600-0052-0000	Printed manual for EZ-ZONE ST
8.00	0600-0058-0000	Printed manual for EZ-ZONE PM - PID
8.00	0600-0657-0000	Printed manual for EZ-ZONE PM - Limit
8.00	0600-0659-0000	Printed manual for EZ-ZONE PM - Integrated
8.00	0600-0660-0000	Printed manual for EZ-ZONE RUI Gateway
8.00	0600-0656-0000	Printed manual for EZ-ZONE Communications
NC	0601-0001-0000	EZ-ZONE CD

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® RM Control Module

**Code Number**—Control module operates off of 20.4 to 30.8V<sub>rms</sub>(ac/dc), +10/-15% power supply, communication port for configuration with EZ-ZONE® configurator and PC

Price	EZ-ZONE Rail Mount	Control Module	Input 1 Primary Function	Output 1 and 2 Hardware Options	Input 2	Output 3 and 4 Hardware Options	Input 3	Output 5 and 6 Hardware Options	Input 4	Output 7 and 8 Hardware Options	Connector Style	Enhanced Options	Additional Options
\$100.00	<b>RM</b>	<b>C</b>											

Input 1	
\$ 60.00	1 = Control with universal input
75.00	2 = Control with thermistor input
185.00	3 = Ramp/soak control with universal input ( <b>R/S applies to all loops in module</b> )
200.00	4 = Ramp/soak control with thermistor input ( <b>R/S applies to all loops in module</b> )
60.00	5 = Limit with universal input ( <b>options for Output 1 and 2 are B, F or L only</b> )
75.00	6 = Limit with thermistor input ( <b>options for Output 1 and 2 are B, F or L only</b> )
30.00	7 = Current transformer input ( <b>invalid options for Output 1 and 2 are N, P, R or S</b> )
Contact Factory	9 = Custom

Output 1 and 2 Hardware Options		
	Output 1	Output 2
NC	A = None	None
\$ 30.00	B = None	Mechanical relay 5A, Form A
NC	U = Switched dc/open collector	None
60.00	D = Switched dc/open collector	NO-ARC 15A power control
50.00	E = Switched dc/open collector	Switched dc
55.00	F = Switched dc/open collector	Mechanical relay 5A, Form A
50.00	G = Switched dc/open collector	SSR Form A, 0.5A
30.00	H = Mechanical relay 5A, Form C	None
65.00	J = Mechanical relay 5A, Form C	NO-ARC 15A power control
55.00	K = Mechanical relay 5A, Form C	Switched dc
60.00	L = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A
55.00	M = Mechanical relay 5A, Form C	SSR Form A, 0.5A
40.00	N = Universal process	None
65.00	P = Universal process	Switched dc
70.00	R = Universal process	Mechanical relay 5A, Form A
65.00	S = Universal process	SSR Form A, 0.5A
25.00	T = None	SSR Form A, 0.5A
60.00	Y = SSR Form A, 0.5A	NO-ARC 15A power control
50.00	Z = SSR Form A, 0.5A	SSR Form A, 0.5A

Input 2	
NC	A = None
\$160.00	1 = Control with universal input
175.00	2 = Control with thermistor input
60.00	5 = Limit with universal input ( <b>options for Output 3 and 4 are B, F or L only</b> )
75.00	6 = Limit with thermistor input ( <b>options for Output 3 and 4 are B, F or L only</b> )
30.00	7 = Current transformer input ( <b>invalid options for Output 3 and 4 are N, P, R or S</b> )

Output 3 and 4 Hardware Options		
	Output 3	Output 4
NC	A = None	None
\$ 30.00	B = None	Mechanical relay 5A, Form A
25.00	U = Switched dc/open collector	None
60.00	D = Switched dc/open collector	NO-ARC 15A power control
50.00	E = Switched dc/open collector	Switched dc
55.00	F = Switched dc/open collector	Mechanical relay 5A, Form A
50.00	G = Switched dc/open collector	SSR Form A, 0.5A
30.00	H = Mechanical relay 5A, Form C	None
65.00	J = Mechanical relay 5A, Form C	NO-ARC 15A power control
55.00	K = Mechanical relay 5A, Form C	Switched dc
60.00	L = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A
55.00	M = Mechanical relay 5A, Form C	SSR Form A, 0.5A
40.00	N = Universal process	None
65.00	P = Universal process	Switched dc
70.00	R = Universal process	Mechanical relay 5A, Form A
65.00	S = Universal process	SSR Form A, 0.5A
25.00	T = None	SSR Form A, 0.5A
60.00	Y = SSR Form A, 0.5A	NO-ARC 15A power control
50.00	Z = SSR Form A, 0.5A	SSR Form A, 0.5A

Input 3	
NC	A = None
\$160.00	1 = Control with universal input
175.00	2 = Control with thermistor input
60.00	5 = Limit with universal input ( <b>options for Output 5 and 6 are B, F or L only</b> )
75.00	6 = Limit with thermistor input ( <b>options for Output 5 and 6 are B, F or L only</b> )
30.00	7 = Current transformer input ( <b>invalid options for Output 5 and 6 are N, P, R or S</b> )

Output 5 and 6 Hardware Options		
	Output 5	Output 6
NC	A = None	None
\$ 30.00	B = None	Mechanical relay 5A, Form A
25.00	U = Switched dc/open collector	None
60.00	D = Switched dc/open collector	NO-ARC 15A power control
50.00	E = Switched dc/open collector	Switched dc
55.00	F = Switched dc/open collector	Mechanical relay 5A, Form A
50.00	G = Switched dc/open collector	SSR Form A, 0.5A
30.00	H = Mechanical relay 5A, Form C	None
65.00	J = Mechanical relay 5A, Form C	NO-ARC 15A power control
55.00	K = Mechanical relay 5A, Form C	Switched dc
60.00	L = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A
55.00	M = Mechanical relay 5A, Form C	SSR Form A, 0.5A
40.00	N = Universal process	None
65.00	P = Universal process	Switched dc
70.00	R = Universal process	Mechanical relay 5A, Form A
65.00	S = Universal process	SSR Form A, 0.5A
25.00	T = None	SSR Form A, 0.5A
60.00	Y = SSR Form A, 0.5A	NO-ARC 15A power control
50.00	Z = SSR Form A, 0.5A	SSR Form A, 0.5A

Input 4	
NC	A = None
\$160.00	1 = Control with universal input
175.00	2 = Control with thermistor input
60.00	5 = Limit with universal input ( <b>options for Output 7 and 8 are B, F or L only</b> )
75.00	6 = Limit with thermistor input ( <b>options for Output 7 and 8 are B, F or L only</b> )
30.00	7 = Current transformer input ( <b>invalid options for Output 7 and 8 are N, P, R or S</b> )

Output 7 and 8 Hardware Options		
	Output 7	Output 8
NC	A = None	None
\$ 30.00	B = None	Mechanical relay 5A, Form A
25.00	U = Switched dc/open collector	None
60.00	D = Switched dc/open collector	NO-ARC 15A power control
50.00	E = Switched dc/open collector	Switched dc
55.00	F = Switched dc/open collector	Mechanical relay 5A, Form A
50.00	G = Switched dc/open collector	SSR Form A, 0.5A
30.00	H = Mechanical relay 5A, Form C	None
65.00	J = Mechanical relay 5A, Form C	NO-ARC 15A power control
55.00	K = Mechanical relay 5A, Form C	Switched dc
60.00	L = Mechanical relay 5A, Form C	Mechanical relay 5A, Form A
55.00	M = Mechanical relay 5A, Form C	SSR Form A, 0.5A
40.00	N = Universal process	None
65.00	P = Universal process	Switched dc
70.00	R = Universal process	Mechanical relay 5A, Form A
65.00	S = Universal process	SSR Form A, 0.5A
25.00	T = None	SSR Form A, 0.5A
60.00	Y = SSR Form A, 0.5A	NO-ARC 15A power control
50.00	Z = SSR Form A, 0.5A	SSR Form A, 0.5A
100.00	C = 6 digital inputs/outputs ( <b>Valid option only if Input 4 selection = A</b> )	

Connector Style	
NC	A = Right angle screw connector (standard)
\$ 15.00	F = Front screw connector

Enhanced Options	
NC	A = Standard bus
\$ 60.00	1 = Standard bus and Modbus® RTU 485

Additional Options	
Firmware, Overlays, Parameter Settings	
NC	AA = Standard
\$ 60.00	AB = Replacement connectors hardware only for the entered model number. Additional cost for the model can be disregarded as you are only ordering replacement connectors.
150.00	12 = Class 1, Div. 2 (not available with integrated limit controller or mechanical relay options)
Contact Factory	XX = Custom

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® RM Expansion Module

To order, complete the code number  
to the right with the information below:

<p><b>Price:</b></p> <p>\$ 125.00</p> <p>NC</p> <p>15.00</p> <p>25.00</p> <p>Contact factory</p> <p>NC</p> <p>100.00</p> <p>100.00</p> <p>80.00</p> <p>NC</p> <p>100.00</p> <p>100.00</p> <p>80.00</p> <p>NC</p> <p>100.00</p> <p>100.00</p> <p>80.00</p> <p>NC</p> <p>100.00</p> <p>200.00</p> <p>NC</p> <p>NC</p> <p>60.00</p> <p>150.00</p> <p>Contact factory</p>	<p><b>RME</b> = EZ-ZONE RM rail mount expansion module standard features operate on 20.4 to 30.8V<sub>ac/dc</sub>, +10/-15% power supply, communication port for configuration with EZ-ZONE configurator and PC</p> <p><b>Connector Style/Custom Product</b></p> <p>A = Right angle screw connector (standard)</p> <p>F = Front screw connector</p> <p>R = Ring lug connector (<b>if ordered, then slots B and E must be = A</b>)</p> <p>S = Custom</p> <p><b>Slot A</b></p> <p>A = None</p> <p>C = 6 Digital I/O</p> <p>J = 4 Mechanical relay 5A, Form A</p> <p>K = 2 SSRs, Form A, 10A max. each (<b>if ordered then slot B must be = A</b>)</p> <p><b>Slot B</b></p> <p>A = None</p> <p>C = 6 Digital I/O</p> <p>J = 4 Mechanical relay 5A, Form A</p> <p><b>Slot D</b></p> <p>A = None</p> <p>C = 6 Digital I/O</p> <p>J = 4 Mechanical relay 5A, Form A</p> <p>K = 2 SSRs, Form A, 10A max. each (<b>if ordered then slot E must be = A</b>)</p> <p><b>Slot E</b></p> <p>A = None</p> <p>C = 6 Digital I/O</p> <p>T = Quad inputs for external transformers. Can do either single- or 3-phase system measurement for all hardware outputs ordered within the expansion module. (future option, contact factory)</p> <p><b>Future Options</b></p> <p>AA = Standard</p> <p><b>Additional Options</b></p> <p>Firmware, Overlays, Parameter settings</p> <p>AA = Standard</p> <p>AB = Replacement connectors hardware only - for the entered model number</p> <p>12 = Class 1, Div. 2 (not available with integrated limit controller or mechanical relay options)</p> <p>XX = Custom</p>	<p><b>RME</b> -</p> <p>- <b>AA</b></p>
---	---	--

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® RM Access Module

To order, complete the code number to the right with the information below:

**Price:**

\$ 125.00 **RMA** = EZ-ZONE RM rail mount access module standard features operate on: 20.4 to 30.8V≈(ac/dc), +10/-15% power supply, communication port for configuration with EZ-ZONE configurator and PC

**Connector Style**

NC A = Right angle screw connector (standard)  
 15.00 F = Front screw connector  
 Contact factory S = Custom

**Future Options**

NC A = Standard

**Communications Options**

NC A = None  
 75.00 2 = Modbus® RTU 232/485  
 125.00 3 = EtherNet/IP™/Modbus®/TCP  
 90.00 5 = DeviceNet™  
 195.00 6 = Profi®Bus DP future option

**Ramp/Soak Functions**

NC A = None  
 50.00 B = Battery back-up and real time clock for profile wait and restart

**System Configuration and Data Logging Options**

	Order Option	USB "Device" Comm.	Limited Auto-Config. File Back-up for up to 4 Modules	Unlimited Auto-Config. File Back-up for up to 16 Modules	On-Board Data Logging	Mobile Data (2G SD Card)
NC	A		X			
75.00	B			X		X
125.00	Y	X		X		X
495.00	D	X		X	X	X

**Future Options**

NC AA = Standard

**Additional Options**

NC Firmware, Overlays, Parameter settings  
 60.00 AA = Standard  
 150.00 AB = Replacement connectors hardware only, for the entered model number  
 Contact factory 12 = Class 1, Div. 2 (not available with integrated limit controller or mechanical relay options)  
 XX = Custom

## Integrated Controllers

F.O.B.: Winona, Minnesota

### EZ-ZONE® RM

#### Accessories

List Price	Part Number	Accessory
-	Refer to EZK ordering sheet for options	1/8 DIN Basic remote user interface (RUI)
-	Refer to EZK ordering sheet for options	1/4 DIN Advanced RUI
\$ 25.00	0822-0586-P002	1/8 DIN Basic RUI DIN-rail mount bracket
60.00	Z100-0875-0000	Modular back plain connector
5.00	0836-0763-0000	DIN-rail end stop
5.00	0830-0720-0000	Rubber plug for slot D (USB and memory card slot)
5.00	0830-0719-0000	Rubber plug for slots A, B and E
200.00	0847-0299-0000	AC/DC Power supply converter 90-264V~(ac) to 24V=(dc) volts, 1.30A, 31 W
240.00	0847-0300-0000	AC/DC Power supply converter 90-264V~(ac) to 2424V=(dc) volts, 2.50A, 60 W
300.00	0847-0301-0000	AC/DC Power supply converter 90-264V~(ac) to 2424V=(dc) volts, 3.8A, 91 W
6.00	0804-0147-0000	Quencharc® RC suppressor
60.00	16-0246	Current transformer (0 to 50A)
25.00	0219-0311-0000	EtherNet/IP™ cable adapter
35.00	0830-0741-0000	SD industrial memory card - 2G memory
25.00	0830-0740-0000	Flash card to USB port adapter
25.00	0600-0061-0000	EZ-ZONE RM User Manual – printed hard copy
NC	0500-3080-0000	Controller support tools - electronic CD

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® ST

To order, complete the code number  
to the right with the information below:

**S T** - - - - -

**ST** = EZ-ZONE ST Integrated Control Loop  
**Integrated PID Controller**

Price:		Output 1*	Output 2	Total of 2 Digital I/O Points	Current Measurement
\$ 210.00	K =	SSR drive	0.5A SSR	No	No
235.00	B =	SSR drive	0.5A SSR	Yes	No
260.00	P =	SSR drive	0.5A SSR	No	Yes
285.00	E =	SSR drive	0.5A SSR	Yes	Yes
215.00	H =	SSR drive	5A mechanical relay	No	No
240.00	D =	SSR drive	5A mechanical relay	Yes	No
265.00	J =	SSR drive	5A mechanical relay	No	Yes
290.00	C =	SSR drive	5A mechanical relay	Yes	Yes

\*Output 1 is dedicated to providing the command signal to the internal SSR.

**Integrated Limit Controller**

- NC A = None
- 120.00 L = Limit control module with output 3, 5A Form C mechanical relay; with output 4, 2A Form A mechanical relay
- 35.00 B = No limit control module but access to coil connection on mechanical contactor

**Mechanical Contactor and Power Supply Options**

- NC AH = No contactor and universal high voltage power supply 100-240V~(ac/dc)
- 35.00 AL = No contactor and universal low voltage power supply 24-28V~(ac/dc)
- 95.00 B1 = Single pole, 40A Watlow contactor, 24V~(ac) power supply
- 60.00 B2 = Single pole, 40A Watlow contactor, 110/120V~(ac) power supply
- 60.00 B3 = Single pole, 40A Watlow contactor, 208/240V~(ac) power supply
- 95.00 F1 = Dual pole, 40A Watlow contactor, 24V~(ac) power supply
- 60.00 F2 = Dual pole, 40A Watlow contactor, 110/120V~(ac) power supply
- 60.00 F3 = Dual pole, 40A Watlow contactor, 208/240V~(ac) power supply

**Communications**

- NC A = Standard Bus used to connect to Watlow PC software, Remote User Interface (RUI), other EZ-ZONES
- 75.00 M = Modbus™ RTU (needed to communicate to third party devices) and Standard Bus. User selectable

**SSR**

- 40.00 B = 10A (24 to 240V~(ac) output) \$ 110.00 F\*\* = 90A (24 to 240V~(ac) output)
- 45.00 C = 25A (24 to 240V~(ac) output) 75.00 G = 25A (48 to 600V~(ac) output)
- 62.00 D = 40A (24 to 240V~(ac) output) 95.00 H = 40A (48 to 600V~(ac) output)
- 65.00 E\*\* = 50A (24 to 240V~(ac) output) 120.00 J\*\* = 90A (48 to 600V~(ac) output)

\*\* EZ-ZONE ST rated for maximum 40A

**Heat Sinks**

- NC A = None
- 25.00 B = 25A
- 35.00 C = 40A

**Firmware**

- NC A = Standard Watlow
- 90.00 P = Profile ramp and soak (40 total steps, 1 to 4 profiles total)
- \* S = Custom

**Customization (logo, parameters, hardware, firmware)**

- NC AA = Standard
- \* XX = Letters to be determined, contact factory

\*Contact factory for price

# Integrated Controllers

F.O.B.: Winona, Minnesota

## EZ-ZONE® ST Replacement Modules

To order, complete the code number to the right with the information below:

					<b>STRC - 0</b>
<b>Price:</b>	<b>STRC-0</b>	=	SERIES ST Replacement Control Module		
			<b>Integrated PID Controller</b>		
			Includes all of the following:		
			• 1 universal input (TC/RTD/0-10V≈(dc)/0-20mA)		
			• 2 outputs for HT/CL or alarm		
			<b>Output 1</b>	<b>Output 2</b>	<b>2 Digital I/O</b>
			<b>Current Measurement</b>		
\$ 210.00	K = SSR drive	0.5A SSR	No	No	
235.00	B = SSR drive	0.5A SSR	Yes	No	
260.00	P = SSR drive	0.5A SSR	No	Yes	
285.00	E = SSR drive	0.5A SSR	Yes	Yes	
215.00	H = SSR drive	5A Form C Relay	No	No	
240.00	D = SSR drive	5A Form C Relay	Yes	No	
265.00	J = SSR drive	5A Form C Relay	No	Yes	
290.00	C = SSR drive	5A Form C Relay	Yes	Yes	
			<b>Note:</b>	Output 1 is dedicated to providing the command signal to the SSR integral to the SERIES ST base	
			<b>Integrated Limit Controller - 1 universal input (TC/RTD/0-10V≈(dc)/0-20mA) and 2 outputs</b>		
NC	A = None				
120.00	L = Limit control module, 5A Form C mechanical relay Output 1, 2A Form A mechanical relay Output 2				
35.00	B = Terminal block access to mechanical contactor coil contacts				
			<b>Power Supply Voltage for ST Controller (Must match optional mechanical contactor in ST base)</b>		
35.00	L = Universal low voltage 24-28V≈(ac/dc) (For use with SERIES ST mechanical contactor/PS options "AL", "B1", "F1")				
NC	H = Universal high voltage 100-240V≈(ac/dc) - For use with SERIES ST mechanical contactor/PS options "AH", "B2", "B3", "F2", "F3"				
			<b>Communications</b>		
NC	A = Standard Bus used to connect to Watlow PC software, Remote User Interface (RUI) or other EZ-ZONES				
75.00	M = Modbus® RTU				
			<b>Firmware</b>		
NC	A = Standard Watlow				
90.00	P = Profile ramp and soak (40 steps, 1 to 4 profiles total)				
Contact factory	S = Custom				
			<b>Customization (Logo, Parameters, Hardware, Firmware)</b>		
NC	AA = Standard				
Contact factory	XX = Letters to be determined, contact factory				

**Note:** For ordering replacement connectors only use the following part number:

					<b>STRC - 1XXX-XXXX</b>
\$ 25.00	<b>EZ-ZONE ST Connector Kit</b>				
			Complete the rest of the code using the ST model ordering matrix shown above. the additional cost adders for the modules can be disregarded as you are only ordering replacement connectors.		

## Integrated Controllers

F.O.B.: Winona, Minnesota

### EZ-ZONE® ST Replacement Base

To order, complete the code number  
to the right with the information below:

**STRT - BASE -** 

<b>Price:</b>	<b>STRT-BASE</b> = SERIES ST Replacement Base
	<b>Integrated Mechanical Controller</b>
\$ 30.00	0000 = Compact base version (no space for mechanical contactor)
60.00	DPB1 = Base housing with single pole, 40A Watlow contactor, 24V~(ac) power supply
60.00	DPB2 = Base housing with single pole, 40A Watlow contactor, 110/120V~(ac) power supply
60.00	DPB3 = Base housing with single pole, 40A Watlow contactor, 208/240V~(ac) power supply
60.00	DPF1 = Base housing with dual pole, 40A Watlow contactor, 24V~(ac) power supply
60.00	DPF2 = Base housing with dual pole, 40A Watlow contactor, 110/120V~(ac) power supply
60.00	DPF3 = Base housing with dual pole, 40A Watlow contactor, 208/240V~(ac) power supply

### EZ-ZONE® ST Replacement Heat Sink

To order, complete the code number  
to the right with the information below:

**STRT - HS -**  **000**

<b>Price:</b>	<b>STRT-HS</b> = SERIES ST Replacement Heat Sink
	<b>Heat Sink Base Configuration (Integrated Mechanical Contactor)</b>
NC	AA = Heat sink for mounting to compact base with no mechanical contactor (ordered separately STRT-BASE-XXXX)
NC	CB = Heat sink for mounting to large base with integrated mechanical contactor (base and contactor ordered separately under STRT-BASE-XXXX)
	<b>Heat Sink Amperage Rating</b>
\$25.00	B = 25A
35.00	C = 40A

### EZ-ZONE® ST Replacement Solid State Relays (SSR's)

<b>Price</b>	
\$ 45.00	0003-0214-0000 = 10A and 25A replacement (24-240V~(ac) output)
65.00	0003-0215-0000 = 40A and 50A replacement (24-240V~(ac) output)**
110.00	0802-0952-0000 = 90A replacement (24-240V~(ac) output)**
75.00	0003-0216-0000 = 25A replacement (48-600V~(ac) output)
95.00	0003-0217-0000 = 40A replacement (48-600V~(ac) output)
120.00	0802-0951-0000 = 90A replacement (48-600V~(ac) output)**

\*\* EZ-ZONE ST rated for maximum 40A



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 93

### Auto-tuning Controllers

To order, complete the code number to the right with the information below:

**Price:**

\$283.00

**SERIES 93** = Microprocessor-based 1/6 DIN, single input, dual output, four-digit displays

**NEMA 4X/IP 65<sup>1</sup> Option**

NC A = Without NEMA 4X/IP 65 Rating

10.00 B = With NEMA 4X/IP 65 Rating<sup>1</sup>

**CE Option**

NC A = Non CE Compliant

10.00 B = CE Compliant

**Output 1**

NC C = Switched dc output, non-isolated

30.00 D = Electromechanical relay, Form C, 5A, without contact suppression<sup>2, 3</sup>

35.00 F = Process, 4-20mA=(dc), non-isolated

25.00 K = Solid state relay, Form A, 0.5A, without contact suppression<sup>3</sup>

**Output 2**

NC A = None

25.00 C = Switched dc output, non-isolated

30.00 D = Electromechanical relay, Form C, 5A, without contact suppression<sup>2, 3</sup>

25.00 K = Solid state relay, Form A, 0.5A, without contact suppression<sup>3</sup>

**Line Voltage/Power**

NC 0 = 100/240V~(ac) nominal (high voltage)

25.00 1 = 12-24V=(ac/dc) nominal (low voltage)

**Custom Options**

NC 00= Standard

**Display**

**Upper Display**

**Lower Display**

NC RR = Red Red

NC RG = Red Green

NC GR = Green Red

NC GG = Green Green

NC AA = Red Red (without Watlow logo)

NC AB = Red Green (without Watlow logo)

NC AC = Green Green (without Watlow logo)

NC AD = Green Red (without Watlow logo)

9 3 - 1 - - -

<sup>1</sup>To effect IP65/NEMA 4X rating requires a minimum mounting panel thickness of 0.06 in. (1.5 mm) and surface finish not rougher than 0.32µ inch (812µ mm). Use Greenlee Punch #60287 or equivalent.

<sup>2</sup>Electromechanical relays are not recommended for PID control. They are warranted only for 100,000 contact closures.

<sup>3</sup>Switching inductive loads (relay, coils, etc.) requires using an RC suppressor. Watlow recommends using the ITW Paktron Quencharc® brand, Watlow P/N 0804-0147-0000.

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES 93

#### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 94

Limit Controllers  
FM Approved

To order, complete the code number to the right with the information below:

		9 4 - 1 - - - -
Price:		
\$283.00	<b>SERIES 94</b> = Microprocessor-based 1/6 DIN, single input, dual output, four-digit displays	
	<b>NEMA 4X/IP 65<sup>1</sup> Option</b> _____	
NC	A = Without NEMA 4X/IP 65 Rating	
10.00	B = With NEMA 4X/IP 65 Rating <sup>1</sup>	
	<b>CE Option</b> _____	
NC	A = Non CE Compliant	
10.00	B = CE Compliant	
	<b>Limit Output 1</b> _____	
30.00	D = Electromechanical relay, Form C, 5A, without contact suppression <sup>2, 3</sup>	
	<b>Alarm Output 2</b> _____	
NC	A = None	
25.00	C = Switched dc output, non-isolated	
30.00	D = Electromechanical relay, Form C, 5A, without contact suppression <sup>2, 3</sup>	
25.00	K = Solid state relay, Form A, 0.5A, without contact suppression <sup>3</sup>	
	<b>Line Voltage/Power</b> _____	
NC	0 = 100/240V~(ac) nominal (high voltage)	
25.00	1 = 12-24V=(ac/dc) nominal (low voltage)	
	<b>Custom Options</b> _____	
NC	00 = Standard	
	<b>Display</b> _____	
	<b>Upper Display</b> <b>Lower Display</b>	
NC	RR = Red	Red
NC	RG = Red	Green
NC	GR = Green	Red
NC	GG = Green	Green
NC	AA = Red	Red (without Watlow logo)
NC	AB = Red	Green (without Watlow logo)
NC	AC = Green	Green (without Watlow logo)
NC	AD = Green	Red (without Watlow logo)

<sup>1</sup>To effect IP65/NEMA 4X rating requires a minimum mounting panel thickness of 0.06 inch (1.5 mm) and surface finish not rougher than 0.32µ inch (812µ mm). Use Greenlee Punch #60287 or equivalent.

<sup>2</sup>Electromechanical relays are not recommended for PID control. They are warranted only for 100,000 contact closures.

<sup>3</sup>Switching inductive loads (relay, coils, etc.) requires using an RC suppressor. Watlow recommends using the ITW Paktron Quencharc® brand, Watlow P/N 0804-0147-0000

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 94

Limit Controllers  
FM Approved

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories for SERIES 93 and SERIES 94

Price	Part No.	Description
\$ 25.00	0822-0586-P002	DIN rail or sub-panel mounting bracket 1/16 DIN
3.00	0822-0426-P001	Protective terminal cover
20.00	0003-0117-0000	Electromechanical relay (solder in)
20.00	0238-0681-0000	SERIES 93 overlay with Watlow logo
20.00	0238-0731-0000	SERIES 93 overlay without Watlow logo
12.00	0842-0164-0000	Solid state relay (solder in)
20.00	0238-0682-0000	SERIES 94 overlay with Watlow logo
20.00	0238-0732-0000	SERIES 94 overlay without Watlow logo
6.00	0804-0147-0000	RC suppression - Quencharc®
10.00	0600-0001-0000	SERIES 93 manual
10.00	0600-0024-0000	SERIES 94 manual

Price	Models 93B		Description
	With NEMA 4X, IP65 Rating	Without NEMA 4X, IP65 Rating	
\$ 4.00	0822-0395-P000	0822-0395-P000	Mounting Collar
7.00	0830-0402-0001	NA	Internal bezel gasket
5.00	0822-0393-0002	0822-0393-0002	Front plastic bezel
16.00	Z100-0594-0000	Z100-0594-0000	Case assembly
7.00	0830-0402-0002	0830-0475-0000	Case gasket
N/C	0822-0401-0001	NA	Set of 4 plastic button inserts

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 96

### Auto-tuning Controllers

Price:  
\$317.00

To order, complete the code number to the right with the information below:

**9 6** - - - - -

**SERIES 96** = Microprocessor based 1/6 DIN with universal input 1. Options include: software, power supply, auxiliary input 2, four outputs and display color

**Power Supply**

- NC A = 100-240V≈(ac/dc)
- 30.00 B = 24-28V≈(ac/dc)

**Auxiliary Input 2**

- NC 0 = None
- 55.00 1 = Event input/Remote set point input

**Output 1**

- NC C = Switched dc/open collector
- 30.00 D = Electromechanical relay, Form C, 2A, without RC suppression
- 45.00 F = Universal Process, range selectable: 0-20mA, 4-20mA, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc)
- 25.00 K = 0.5A solid state relay without RC suppression

**Output 2**

- NC A = None
- 25.00 C = Switched dc output/open collector
- 30.00 D = Electromechanical relay, Form C, 2A, without RC suppression
- 45.00 F = Universal Process, range selectable: 0-20mA, 4-20mA, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc)
- 25.00 K = 0.5A solid state relay without RC suppression

**Output 3**

- NC A = None
- 30.00 D = Electromechanical relay, Form C, 2A, without RC suppression

**Output 4**

- NC A = None
- 30.00 D = Electromechanical relay, Form C, 2A, without RC suppression
- 55.00 M = Universal Retransmit, range selectable: 0-20mA, 4-20mA, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc)
- 75.00 R = EIA/TIA-232 Communications
- 75.00 U = EIA/TIA-485 Modbus® Communications

**Software/Preset Parameters**

- NC 00 = Standard software (order with standard display/overlay)
- 75.00 AA = Ramping software (order with ramping display/overlay)
- 75.00 XX = Custom software (See miscellaneous charge #4)
- 10.00 XX = Preset parameters (See miscellaneous charge #2)
- 10.00 RB = Standard software with reverse bumpless (order with standard display/overlay)

**Standard Display/Overlay**

	<b>Upper Display</b>	<b>Lower Display</b>		<b>Upper Display</b>	<b>Lower Display</b>
NC	RR = Red	Red	AA =	Red	Red (without Watlow logo)
NC	RG = Red	Green	AB =	Red	Green (without Watlow logo)
NC	GR = Green	Red	AC =	Green	Green (without Watlow logo)
NC	GG = Green	Green	AD =	Green	Red (without Watlow logo)

**Ramping Display/Overlay**

	<b>Upper Display</b>	<b>Lower Display</b>		<b>Upper Display</b>	<b>Lower Display</b>
NC	BA = Red	Red	BE =	Red	Red (without Watlow logo)
NC	BB = Red	Green	BF =	Red	Green (without Watlow logo)
NC	BC = Green	Red	BG =	Green	Green (without Watlow logo)
NC	BD = Green	Green	BH =	Green	Red (without Watlow logo)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 96

Auto-tuning  
Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned stock controllers and accessories in like new condition and within 120 days after shipment.

**Non-stock and modified stock items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

**Output Module Kit Includes:**

- Output module
- Instruction sheet
- Terminal block
- Extra labels to update wiring and model number on side of case

Price	Part No.	Description
\$ 25.00	0822-0586-P002	<b>Package Hardware</b> DIN rail or sub-panel mounting bracket 1/8" DIN
6.00	Z100-0723-0000	Mounting collar with screws
2.00	0822-0549-0001	Retention collar
6.00	0830-0466-0000	Gasket
20.00	0238-0676-0000	Standard Overlay with Watlow logo
20.00	0238-0685-0000	Standard Overlay without Watlow logo
20.00	0238-0818-0000	Ramping Overlay with Watlow logo
20.00	0238-0840-0000	Ramping Overlay without Watlow logo
3.00	0822-0545-0001	Output 2 accessory clip
3.00	0822-0654-0000	Plastic terminal block cover
10.00	0836-0418-0000	<b>Terminal Blocks</b> 4-pin terminal block for Input 1
10.00	0836-0420-0000	7-pin terminal block for Input 1 and 2
10.00	0836-0415-0000	3-pin terminal block for Output 1
10.00	0836-0416-0000	3-pin terminal block for Output 2
10.00	0836-0419-0000	5-pin terminal block for Output 3 & power supply
10.00	0836-0417-0000	3-pin terminal block for Output 4
10.00	0836-0414-0000	2-pin terminal block for power supply
30.00	Z100-0739-0001	<b>Output Modules</b> Open collector/switched dc output
35.00	Z100-0739-0002	Mechanical relay for Outputs 1, 2, or 4
35.00	Z100-0739-0003	Mechanical relay for Outputs 3
50.00	Z100-0739-0004	Process output
30.00	Z100-0739-0005	Solid state relay output
60.00	Z100-0739-0006	Retransmit output
80.00	Z100-0739-0007	EIA/TIA 232 communications
80.00	Z100-0739-0008	EIA/TIA 485 Modbus® communications
6.00	0804-0147-0000	<b>Miscellaneous</b> RC suppression - Quencharc®
25.00	0830-0494-0000	ESD protective wrist strap

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 97

Limit Controllers  
FM Approved

To order, complete the code number to the right with the information below:

<p><b>Price:</b></p> <p>\$317.00</p> <p>NC 30.00</p> <p>NC 55.00</p> <p>30.00</p> <p>NC 25.00</p> <p>30.00</p> <p>25.00</p> <p>N/C 30.00</p> <p>NC 30.00</p> <p>55.00</p> <p>75.00</p> <p>75.00</p> <p>NC 10.00</p> <p>30.00</p>	<p><b>SERIES 97</b> = Microprocessor-based 1/6 DIN with T/C, RTD input 1 Options include: software, power supply, auxiliary input 2, four outputs and display color</p> <p><b>Power Supply</b> _____</p> <p>NC A = 100-240V≈(ac/dc)</p> <p>B = 24-28V≈(ac/dc)</p> <p><b>Auxiliary Input 2</b> _____</p> <p>NC 0 = None</p> <p>1 = Event input</p> <p><b>Limit Output 1</b> _____</p> <p>D = Electromechanical relay, Form C, 2A, without RC suppression</p> <p><b>Alarm Output 2</b> _____</p> <p>NC A = None</p> <p>C = Switched dc output/open collector</p> <p>D = Electromechanical relay, Form C, 2A, without RC suppression</p> <p>K = 0.5A solid state relay without RC suppression</p> <p><b>Alarm Output 3</b> _____</p> <p>N/C A = None</p> <p>D = Electromechanical relay, Form C, 2A, without RC suppression</p> <p><b>Auxiliary Output 4</b> _____</p> <p>NC A = None</p> <p>D = Electromechanical relay, Form C, 2A, without RC suppression</p> <p>M = Universal Retransmit, range selectable: 0-20mA, 4-20mA, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc)</p> <p>R = EIA/TIA 232 communications</p> <p>U = EIA/TIA 485 Modbus® communications</p> <p><b>Software/Preset Parameters</b> _____</p> <p>NC 00 = Standard software</p> <p>XX = Preset parameters (See miscellaneous charge #2)</p> <p><b>Display</b> _____</p> <table border="0" style="margin-left: 20px;"> <thead> <tr> <th style="text-align: left;">Upper Display</th> <th style="text-align: left;">Lower Display</th> </tr> </thead> <tbody> <tr> <td>NC RR = Red</td> <td>Red</td> </tr> <tr> <td>NC RG = Red</td> <td>Green</td> </tr> <tr> <td>NC GR = Green</td> <td>Red</td> </tr> <tr> <td>NC GG = Green</td> <td>Green</td> </tr> <tr> <td>NC AA = Red</td> <td>Red (without Watlow logo)</td> </tr> <tr> <td>NC AB = Red</td> <td>Green (without Watlow logo)</td> </tr> <tr> <td>NC AC = Green</td> <td>Green (without Watlow logo)</td> </tr> <tr> <td>NC AD = Green</td> <td>Red (without Watlow logo)</td> </tr> <tr> <td>10.00 XX = Custom overlay (See miscellaneous charge #3)</td> <td></td> </tr> </tbody> </table>	Upper Display	Lower Display	NC RR = Red	Red	NC RG = Red	Green	NC GR = Green	Red	NC GG = Green	Green	NC AA = Red	Red (without Watlow logo)	NC AB = Red	Green (without Watlow logo)	NC AC = Green	Green (without Watlow logo)	NC AD = Green	Red (without Watlow logo)	10.00 XX = Custom overlay (See miscellaneous charge #3)		<p>9 7 - - - - -</p>
Upper Display	Lower Display																					
NC RR = Red	Red																					
NC RG = Red	Green																					
NC GR = Green	Red																					
NC GG = Green	Green																					
NC AA = Red	Red (without Watlow logo)																					
NC AB = Red	Green (without Watlow logo)																					
NC AC = Green	Green (without Watlow logo)																					
NC AD = Green	Red (without Watlow logo)																					
10.00 XX = Custom overlay (See miscellaneous charge #3)																						

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 97

Limit Controllers  
FM Approved

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned stock controllers and accessories in like new condition and within 120 days after shipment.

**Non-stock and modified stock items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

**Output Module Kit Includes:**

- Output module
- Instruction sheet
- Terminal block
- Extra labels to update wiring and model number on side of case

Price	Part No.	Description
\$ 25.00	0822-0586-P002	<b>Package Hardware</b>
6.00	Z100-0723-0000	DIN rail or sub-panel mounting bracket 1/8" DIN
2.00	0822-0549-0001	Mounting collar with screws
6.00	0830-0466-0000	Retention collar
20.00	0238-0704-0000	Gasket
20.00	0238-0733-0000	Overlay
3.00	0822-0654-0000	Overlay without Watlow logo
		Plastic terminal block cover
10.00	0836-0418-0000	<b>Terminal Blocks</b>
10.00	0836-0420-0000	4 pin terminal block for Input 1
10.00	0836-0415-0000	7 pin terminal block for Input 1 and 2
10.00	0836-0416-0000	3 pin terminal block for Output 1
10.00	0836-0419-0000	3 pin terminal block for Output 2
10.00	0836-0417-0000	5 pin terminal block for Output 3 & power supply
10.00	0836-0414-0000	3 pin terminal block for Output 4
		2 pin terminal block for power supply
30.00	Z100-0739-0001	<b>Output Modules</b>
35.00	Z100-0739-0002*	Open collector/switched dc output
35.00	Z100-0739-0003	Mechanical relay for Outputs 1, 2, or 4
50.00	Z100-0739-0004	Mechanical relay for Outputs 3
30.00	Z100-0739-0005	Process output
60.00	Z100-0739-0006	Solid state relay output
80.00	Z100-0739-0007	Retransmit output
80.00	Z100-0739-0008	EIA/TIA 232 communications
		EIA/TIA 485 Modbus® communications
		<b>Miscellaneous</b>
6.00	0804-0147-0000	RC suppression - Quencharc®

\*Mechanical relay is the only module accepted in Output 1



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 935

### Auto-tuning Controllers

To order, complete the code number on the right with the information below:

Price:		9 3 5 - 1 C - 0
\$237.50	<b>SERIES 935</b> = Single thermocouple or RTD (DIN) input, dual output, single 4-digit digital display temperature controller with time function	
	<b>Remote Inputs</b>	
NC	A = Remote set point input, or front panel lock input in place of output #1	
25.00	B = Separate input for remote timer start, or front panel lock	
	<b>Output 1/Remote Input</b>	
NC	C = Switched dc, logic signal, non-isolated <i>(Optionally used for remote set point input, or front panel lock input for Remote Input A option only)</i>	
	<b>Output 2</b>	
NC	C = Switched dc, logic signal, non-isolated	
25.00	D = Electromechanical <sup>1</sup> relay, Form A, 2A, 240V~(ac), without contact suppression <sup>3</sup> <i>Only available with Remote Input Option A.</i>	
25.00	K = Solid state relay, Form A, 0.5A, 24-264V~(ac), without contact suppression <sup>3</sup> <i>Only available with Remote Input Option A</i>	
	<b>Power Supply</b>	
NC	0 = 100-240V~(ac) nominal (high voltage)	
25.00	1 = 24-28V~(ac/dc) nominal (low voltage) <i>Only available with Remote Input Option A</i>	
	<b>Custom Options</b>	
NC	00 = None	
NC	AA = No Watlow logo	
	<b>Display</b>	
	R = Red displays	
	G = Green displays	

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

<sup>2</sup>To effect NEMA 4X (IP65) rating requires a minimum mounting panel thickness of 0.06 inch (1.5mm) and a surface finish not rougher than 0.000032 inch (0.000812mm).

<sup>3</sup>When using this output to drive a solenoids, MDR or electromechanical relay (contactor), protect output with a Quencharc®. Order code number 0804-0147-0000. Refer to owner's manual for wiring information.

### Range Information

Thermocouple					
E T/C:	- 328	to	1470° F	or	- 200 to 799 °C
J T/C:	32	to	1382° F	or	0 to 750 °C
K T/C:	- 328	to	2282° F	or	- 200 to 1250 °C
N T/C:	32	to	2282° F	or	0 to 1250 °C
S T/C:	32	to	2642° F	or	0 to 1450 °C
T T/C:	- 328	to	662° F	or	- 200 to 350 °C
RTD Resolution (DIN)					
1° RTD:	- 328	to	1292° F	or	- 200 to 700 °C
0.1° RTD:	- 199.9	to	999.9° F	or	- 128.8 to 537.7 °C

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 935

Auto-tuning  
Controllers

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Replacement Parts and Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P001	DIN rail or sub panel mounting bracket ½ DIN
3.00	0822-0465-P000	Mounting collar
5.00	0830-0435-0000	Case gasket
15.00	Z100-0702-0HCC	Terminal block and cover
15.00	Z100-0702-0HCK	Terminal block and cover
15.00	Z100-0702-0HCD	Terminal block and cover
15.00	Z100-0702-0LCC	Terminal block and cover
15.00	Z100-0702-0LCD	Terminal block and cover
15.00	Z100-0702-0LCK	Terminal block and cover
6.00	0804-0147-0000	Quencharc® RC suppressor
4.00	0027-0762-0000	Bezel - Watlow
4.00	0027-0763-0000	Bezel - no logo
1.25	0822-0492-P000	O-Ring assembly
3.00	0807-0231-0000	Button assembly

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 981/982

### Time/Temperature Profile Controllers

**Price**

\$505.00

NC  
NC  
25.00  
25.00

NC  
50.00

NC  
50.00

NC  
50.00  
25.00

25.00  
NC  
30.00  
30.00  
35.00  
25.00

NC  
25.00  
25.00  
30.00  
30.00  
35.00  
25.00  
25.00

NC  
25.00  
25.00  
30.00  
25.00  
45.00  
45.00  
25.00

NC  
25.00  
25.00  
30.00  
30.00  
25.00  
110.00  
110.00  
110.00  
25.00

NC  
NC  
NC  
NC

To order, complete the code number with the information below:

**SERIES 981/982** Ramping Controller  
1 Analog Input, 4 Outputs, 2 Digital Inputs

**Power Supply & Mounting**

- 1 = 100 to 240V≈(ac/dc) nominal, horizontal mounting
- 2 = 100 to 240V≈(ac/dc) nominal, vertical mounting
- 3 = 24 to 28V≈(ac/dc) nominal, horizontal mounting
- 4 = 24 to 28V≈(ac/dc) nominal, vertical mounting

**Software**

- C = Standard (4-file/6 step per file program), (includes Modbus®)
- S = Special customer feature, see Misc. Charges

**Input 1**

- 1 = Basic thermocouple signal conditioner (excluding Type B, R, and S)
- 2 = Universal signal conditioner (see Range Information)

**Input 2**

- 0 = None
- 3 = Slidewire feedback (see Range Information)
- 5 = Second digital event (one digital event is standard on all units)

**Output 1**

- B = Solid state relay, Form A, 0.5A, with RC suppression
- C = Switched dc or open collector, isolated
- D = Electromechanical relay<sup>1</sup>, Form C, 5A with RC suppression
- E = Electromechanical relay<sup>1</sup>, Form C, 5A without contact suppression
- F = Universal process, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated
- K = \*\*Solid state relay, 0.5A, without contact suppression

**Output 2<sup>2</sup>**

- A = None
- B = Solid state relay, Form A, 0.5A, with RC suppression
- C = Switched dc open collector, isolated
- D = Electromechanical relay<sup>1</sup>, Form C, 5A with RC suppression
- E = Electromechanical relay<sup>1</sup>, Form C, 5A without contact suppression
- F = Universal process 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated
- K = \*\*Solid state relay, Form A, 0.5A, without contact suppression
- T = External Signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)

**\*\*\*Output 3**

- A = None
- B = Solid state relay, Form A, 0.5A, with RC suppression
- C = Switched dc, isolated
- J = Electromechanical relay<sup>1</sup>, Form A or B, 5A without contact suppression
- K = \*\*Solid state relay, Form A, 0.5A without contact suppression
- M = Retransmit, 0-20mA≈(dc), 4-20mA≈(dc), isolated
- N = Retransmit, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), isolated
- T = External Signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)

**\*\*\*Output 4**

- A = None
- B = Solid state relay, Form A, 0.5A, with RC suppression
- C = Switched dc or open collector, isolated
- D = Electromechanical relay<sup>1</sup>, Form C, 5A with RC suppression
- E = Electromechanical relay<sup>1</sup>, Form C, 5A without contact suppression
- K = \*\*Solid state relay, Form A, 0.5A without contact suppression
- R = EIA/TIA-232 communications, opto-isolated
- S = EIA/TIA-485, EIA/TIA-422 communications, opto-isolated
- U = EIA/TIA-232, EIA/TIA-485 Modbus® communications, opto-isolated
- T = External Signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)

**Display Color (Upper/Lower)**

- GG = Green/Green
- GR = Green/Red
- RG = Red/Green
- RR = Red/Red
- XX = Custom overlays, parameters or software, see misc. charges



\*\*Note: If this output will drive a solenoid, MDR, contactor or other inductive device, order a Quencharc® (0804-0147-0000) for output protection. See user's manual for wiring.

\*\*\*Event output capable

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

<sup>2</sup>Output cannot be configured as an event output.

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 981/982

Time/Temperature Profile Controllers

### Range Information

Input	°F		°C	
<b>Thermocouple</b>				
C <sup>2</sup> T/C:	32	to 4200° F	or	0 to 2316 °C
D <sup>2</sup> T/C:	32	to 4200° F	or	0 to 2316° C
E T/C:	- 328	to 1470° F	or	- 200 to 799° C
J T/C:	32	to 1500° F	or	0 to 816° C
K T/C:	- 328	to 2500° F	or	- 200 to 1371 °C
N T/C:	32	to 2372° F	or	0 to 1300 °C
T T/C:	- 328	to 750° F	or	- 200 to 399 °C
Pt 2 <sup>2</sup> : (Platinel 2)	32	to 2543° F	or	0 to 1395° C
<b>Available with universal signal conditioner (includes all T/C types listed above)</b>				
B T/C:	32	to 3300° F	or	0 to 1816° C
R T/C:	32	to 3200° F	or	0 to 1760° C
S T/C:	32	to 3200° F	or	0 to 1760° C
1° RTD (DIN):	- 328	to 1472° F	or	- 200 to 800 °C
1° RTD (JIS):	- 328	to 1166° F	or	- 200 to 630° C
0.1° RTD:	- 99.9	to 999.9° F	or	- 73.3 to 537.7 °C
<b>Process</b>				
0-5V=(dc):	- 999	to 9999 units		
1-5V=(dc):	- 999	to 9999 units		
0-10V=(dc):	- 999	to 9999 units		
0-20mA=(dc):	- 999	to 9999 units		
4-20mA=(dc):	- 999	to 9999 units		
0-50mV=(dc):	- 999	to 9999 units		
<b>#2 Input Slidewire Feedback</b>				
Slidewire:	100	to 1200Ω		<sup>2</sup> Not an ANSI symbol.

### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

#### 1. Product Returns for Credit:

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment. Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

#### 2. Custom Set-up parameters:

- \$500 net one-time charge to fully document custom set-up parameters.
- **Custom parameters \$10 list price adder.**

- \$50 net set up charge applies to orders of less than 10 pieces for controllers with software set up requirements.

#### 3. Artwork/Private Label Charge:

- \$700 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.
- \$250 net set-up charge applies to orders of less than 10 pieces.
- **Custom overlay \$10 list price adder.**
- **Orders with custom overlays require 10 working days lead time.**

#### 4. Software Modification Charge:

Consult factory for quote package and availability. **A \$50 net set-up charge applies to orders of less than 10 pieces for controllers with custom software requirements.**

- **Custom software \$50 list price adder (98XS-XXXX-XXXX).**

### Replacement Parts and Accessories

Price	Part No.	Description
\$ 3.00	0822 - 0438 - P000	Mounting collar
7.00	Z100 - 0636 - 0000	Mounting brackets (Retainer Kit) Qty 2
5.00	0822 - 0444 - P000	Protective terminal cover
5.00	0830 - 0425 - 0000	Internal bezel gasket
4.00	0830 - 0424 - 0000	Case gasket
12.00	0003 - 0103 - 0000	Electromechanical relay, 5A (solder in)
12.00	0842 - 0164 - 0000	Solid state relay, 0.5A (solder in)
6.00	0804 - 0147 - 0000	Quencharc® RC suppressor
30.00	Z100 - 0635 - 0000	Case only (no labels)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 988/989

### Auto-tuning Controllers

<p><b>Price:</b> \$440.00</p>	<p><b>To order, complete the code number to the right with the information below:</b></p> <p><b>SERIES 988/989</b> = Single channel, temperature/process controller, 2 inputs, 4 outputs.</p> <p><b>Power Supply &amp; Mounting</b></p> <p>25.00 6 = 24 to 28V≈(ac/dc) nominal, vertical mounting          25.00 7 = 24 to 28V≈(ac/dc) nominal, horizontal mounting          NC 8 = 100 to 240V≈(ac/dc) nominal vertical mounting          NC 9 = 100 to 240V≈(ac/dc) nominal horizontal mounting</p> <p><b>Software</b></p> <p>NC A = Standard (Includes Modbus®)          50.00 B = Enhanced (Includes cascade, differential # ratio,<sup>1</sup> duplex, dual PID set, etc.)          50.00 S = Special customer feature, see Misc. Charges</p> <p><b>Input 1</b></p> <p>NC 1 = Thermocouple only (Excluding Type B, R, and S)          50.00 2 = Universal signal conditioner (see range information)</p> <p><b>Input 2</b></p> <p>NC 0 = None          50.00 1 = Thermocouple only (Excluding Type B, R, and S)          50.00 2 = Universal signal conditioner (see range information)          50.00 3 = Slidewire feedback (see range information)          50.00 4 = Current transformer<sup>2</sup> (CT accessory not included)          25.00 5 = Second digital contact event (One digital event is standard on all units)</p> <p><b>Output 1</b></p> <p>25.00 B = Solid state relay, Form A, 0.5A, with RC suppression          NC C = Switched dc or open collector, isolated          30.00 D = Electromechanical relay<sup>1</sup>, Form C, 5A with RC suppression          30.00 E = Electromechanical relay<sup>1</sup>, Form C, 5A without contact suppression          35.00 F = Universal process, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated          25.00 K = **Solid state relay, 0.5A, without contact suppression</p> <p><b>Output 2</b></p> <p>NC A = None          25.00 B = Solid state relay, Form A, 0.5A, with RC suppression          25.00 C = Switched dc or open collector, isolated          30.00 D = Electromechanical relay<sup>1</sup>, Form C, 5A with RC suppression          30.00 E = Electromechanical relay<sup>1</sup>, Form C, 5A without contact suppression          35.00 F = Universal process 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated          25.00 K = **Solid state relay, Form A, 0.5A, without contact suppression          25.00 T = External Signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)</p> <p><b>Output 3</b></p> <p>NC A = None          25.00 B = Solid state relay, Form A, 0.5A, with RC suppression          25.00 C = Switched dc, isolated          30.00 J = Electromechanical relay<sup>1</sup>, Form A or B, 5A without contact suppression          25.00 K = **Solid state relay, Form A, 0.5A without contact suppression          45.00 M = Retransmit, 0-20mA≈(dc), 4-20mA≈(dc), isolated          45.00 N = Retransmit, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), isolated          25.00 T = External Signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)</p> <p><b>Output 4</b></p> <p>NC A = None          25.00 B = Solid state relay, Form A, 0.5A, with RC suppression          25.00 C = Switched dc or open collector, isolated          30.00 D = Electromechanical relay<sup>1</sup>, Form C, 5A with RC suppression          30.00 E = Electromechanical relay<sup>1</sup>, Form C, 5A without contact suppression          25.00 K = **Solid state relay, Form A, 0.5A without contact suppression          110.00 R = EIA/TIA-232 communications, opto-isolated          110.00 S = EIA/TIA-485 Modbus®, EIA/TIA-422 communications, opto-isolated          110.00 U = EIA/TIA-485 Modbus®, EIA/TIA-232 communications, opto-isolated          25.00 T = External Signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)</p> <p><b>Display</b></p> <p>NC GG = Green/Green displays          NC GR = Green/Red displays          NC RG = Red/Green displays          NC RR = Red/Red displays          XX = Custom overlays, parameters, or software, see misc. charges</p>	<p><b>9 8</b> - - - - -</p>
-----------------------------------	--	-----------------------------

\*\*Note: If this output will drive a solenoid, MDR, contactor or other inductive device, order a Quencharc® (0804-0147-0000) for output protection. See user's manual for wiring.

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

<sup>2</sup>A Current Transformer input cannot be used in conjunction with a process output installed on output 1(F).

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 988/989

### Auto-tuning Controllers

### Range Information

Input	°F		°C	
<b>Thermocouple</b>				
B T/C:	32	to 3300° F	or	0 to 1816° C
C <sup>2</sup> T/C:	32	to 4200° F	or	0 to 2316° C
D <sup>2</sup> T/C:	32	to 4200° F	or	0 to 2316° C
E T/C:	- 328	to 1470° F	or	- 200 to 799° C
J T/C:	32	to 1500° F	or	0 to 816° C
K T/C:	- 328	to 2500° F	or	- 200 to 1371° C
N T/C:	32	to 2372° F	or	0 to 1300° C
R T/C:	32	to 3200° F	or	0 to 1760° C
S T/C:	32	to 3200° F	or	0 to 1760° C
T T/C:	- 328	to 750° F	or	- 200 to 399° C
Pt 2 <sup>2</sup> : (Platinel 2)	32	to 2543° F	or	0 to 1395° C
0-50mV=(dc):	- 999	to 9999 units		
<b>Available with universal signal conditioner</b>				
1° RTD (DIN):	- 328	to 1472° F	or	- 200 to 800° C
1° RTD (JIS):	- 328	to 1166° F	or	- 200 to 630° C
0.1° RTD:	- 99.9	to 999.9° F	or	- 73.3 to 537.7° C
<b>Process</b>				
0-5V=(dc):	- 999	to 9999 units		
1-5V=(dc):	- 999	to 9999 units		
0-10V=(dc):	- 999	to 9999 units		
0-20mA=(dc):	- 999	to 9999 units		
4-20mA=(dc):	- 999	to 9999 units		
<b>#2 Input Slidewire Feedback</b>				
Slidewire:	100	to 1200Ω		
Potentiometer	0	to 1200Ω		
<b>Current Transformer</b>				
Current:	0	to 50mA		<sup>2</sup> Not an ANSI symbol.

### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

#### 1. Product Returns for Credit:

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment. Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

#### 2. Custom Set-up parameters:

- \$250 net one-time charge to fully document custom set-up parameters.

#### • Custom parameters \$10 list price adder.

- \$50 net set up charge applies to orders of less than 10 pieces for controllers with software set up requirements.

#### 3. Artwork/Private Label Charge:

- \$350 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.
- \$100 net set-up charge applies to orders of less than 10 pieces.

#### • Custom overlay \$10 list price adder.

- Orders with custom overlays require 10 working days lead time.
- 4. Software Modification Charge: Consult factory for quote package and availability. **A \$50 net set-up charge applies to orders of less than 10 pieces for controllers with custom software requirements.**

- Custom software \$50 list price adder (98XS-XXXX-XXXX).

### Replacement Parts and Accessories

Price	Part No.	Description
\$ 60.00	16 - 0246	20A to 50A current transformer
3.00	0822 - 0438 - P000	Mounting collar
7.00	Z100 - 0636 - 0000	Mounting brackets (Retainer Kit) Qty 2
5.00	0822 - 0444 - P000	Protective terminal cover
5.00	0830 - 0425 - 0000	Internal bezel gasket
4.00	0830 - 0424 - 0000	Case gasket
12.00	0003 - 0103 - 0000	Electromechanical relay, 5A (solder in)
12.00	0842 - 0164 - 0000	Solid state relay, 0.5A (solder in)
6.00	0804 - 0147 - 0000	Quencharc <sup>®</sup> RC suppressor
30.00	Z100 - 0635 - 0000	Case only (no labels)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 988LF/989LF

### Auto-tuning Controllers

**Price:**

\$456.00

To order, complete the code number to the right with the information below:

9 8 L - - A A

**SERIES 988LF** = Single channel 1/2 DIN temperature controller, vertical or horizontal mount

**Hardware**

- 25.00 6 = 24-28V≈(ac/dc) vertical mounting
- 25.00 7 = 24-28V≈(ac/dc) horizontal mounting
- NC 8 = 100-240V≈(ac/dc) vertical mounting
- NC 9 = 100-240V≈(ac/dc) horizontal mounting

**Software**

- NC L = Standard

**Input 1**

- NC 1 = Basic thermocouple signal conditioner (excluding types B, R, and S)
- 50.00 2 = Universal signal conditioner (see Range Information)

**Input 2 (Remote Set Point)**

- NC 0 = None
- 50.00 2 = Universal signal conditioner (Remote Set Point)

**Output 1**

- 25.00 B = Solid state relay, Form A, 0.5A, with RC suppression
- NC C = Switched ≈(dc) or open collector, isolated
- 30.00 D = Electromechanical relay<sup>1</sup>, Form C, 5A, with RC suppression
- 30.00 E = Electromechanical relay<sup>1</sup>, Form C, 5A, without contact suppression
- 35.00 F = Universal process. 0-5V≈(dc), 1-5V≈(dc), 0-10≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated
- 25.00 K = Solid state relay, Form A, 0.5A, without contact suppression

**Output 2**

- NC A = None
- 25.00 B = Solid state relay, Form A, 0.5A, with RC suppression
- 25.00 C = Switched ≈(dc) or open collector, isolated
- 30.00 D = Electromechanical relay<sup>1</sup>, Form C, 5A, with RC suppression
- 30.00 E = Electromechanical relay<sup>1</sup>, Form C, 5A, without contact suppression
- 25.00 K = Solid state relay, Form A, 0.5A, without contact suppression

**Outputs 3 and 4**

- NC AA = None

**Display/Overlay**

- NC GG = Green/Green display
- NC GR = Green/Red display
- NC RG = Red/Green display
- NC RR = Red/Red display

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 988LF/989LF

### Auto-tuning Controllers

### Range Information

### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

Input	°F		°C	
<b>Thermocouple</b>				
B T/C:	32	to 3300°F	or	0 to 1816°C
C <sup>2</sup> T/C:	32	to 4200°F	or	0 to 2316°C
D <sup>2</sup> T/C:	32	to 4200°F	or	0 to 2316°C
E T/C:	-328	to 1470°F	or	-200 to 799°C
J T/C:	32	to 1500°F	or	0 to 816°C
K T/C:	-328	to 2500°F	or	-200 to 1371°C
N T/C:	32	to 2372°F	or	0 to 1300°C
R T/C:	32	to 3200°F	or	0 to 1760°C
S T/C:	32	to 3200°F	or	0 to 1760°C
T T/C:	-328	to 750°F	or	-200 to 399°C
Pt 2 <sup>2</sup> : (Platinel 2)	32	to 2543°F	or	0 to 1395°C
0-50mV=(dc)	-999	to 9999 units		
<b>(Available with universal signal conditioner)</b>				
RTD Resolution (DIN or JIS)				
1° (DIN)	-328	to 1472°F	or	-200 to 800°C
1° (JIS)	-328	to 1166°F	or	-200 to 630°C
0.1° (DIN and JIS)	-99.9	to 999.9°F	or	-73.3 to 537.7°C
<b>Process</b>				
0-5V=(dc)	-999	to 9999 units		
1-5V=(dc)	-999	to 9999 units		
0-10V=(dc)	-999	to 9999 units		
0-20mA=(dc)	-999	to 9999 units		
4-20mA=(dc)	-999	to 9999 units		

<sup>2</sup> Not an ANSI symbol.

### Miscellaneous Charges

#### 1. Product Returns for Credit:

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment. Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

#### 2. Custom Setup Parameters:

- \$250 net one-time charge to fully document custom setup parameters.
- Custom parameters \$10 list price adder.

- \$50 net set up charge applies to orders of less than 10 pieces for controllers with software set up requirements.

#### 3. Artwork/Private Label Charge:

- \$350 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net setup charge per order, consult factory.
- \$100 net setup charge applies to orders of less than 10 pieces.

- Custom overlay \$10 list price adder.
- Orders with custom overlays require 10 working days lead time.

### Replacement Parts and Accessories

Price	Part No.	Description
\$ 3.00	0822 - 0438 - P000	Mounting collar
7.00	Z100 - 0636 - 0000	Mounting brackets (Retainer Kit) Qty 2
5.00	0822 - 0444 - P000	Protective terminal cover
5.00	0830 - 0425 - 0000	Internal bezel gasket
4.00	0830 - 0424 - 0000	Case gasket
12.00	0003 - 0103 - 0000	Electromechanical relay, 5A (solder in)
12.00	0842 - 0164 - 0000	Solid state relay, 0.5A (solder in)
6.00	0804 - 0147 - 0000	Quencharc <sup>®</sup> RC suppressor
30.00	Z100 - 0635 - 0000	Case only (no labels)



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 998/999

### Multi-Loop Controllers

Price  
\$595.00

To order, complete code number to the right with the information below:

9 9

**SERIES 998/999** = Dual channel microprocessor based, dual input, six output temperature control, 1/2 DIN vertical or horizontal

**Hardware**

- 25.00 6 = 24-28V≈(ac/dc) nominal, vertical mounting
- 25.00 7 = 24-28V≈(ac/dc) nominal, horizontal mounting
- NC 8 = 100-240V≈(ac/dc) nominal, vertical mounting
- NC 9 = 100-240V≈(ac/dc) nominal, horizontal mounting

**Software**

- NC D = Dual channel software (includes Modbus®)
- 50.00 S = Special customer feature, see Misc. Charges

**Channel A Input**

- NC 1 = Basic thermocouple signal conditioner (excluding Types B, R and S)
- 50.00 2 = Universal signal conditioner (see Range Information)

**Channel B Input**

- NC 1 = Basic thermocouple signal conditioner (excluding Types B, R and S)
- 50.00 2 = Universal signal conditioner (see Range Information)

**Channel A Outputs**

- NC C = Dual switched dc, isolated
- 60.00 E = Dual electromechanical relay<sup>1</sup>, Form A, 2A, without contact suppression
- 35.00 F = Single universal process. 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated
- 50.00 K = \*\*Dual solid state relay, Form A, 0.5A, without contact suppression

**Channel B Outputs**

- NC C = Dual switched dc, isolated
- 60.00 E = Dual electromechanical relay<sup>1</sup>, Form A, 2A, without contact suppression
- 35.00 F = Single universal process, 0-5V≈(dc), 1-5V≈(dc), 0-10V≈(dc), 0-20mA≈(dc), 4-20mA≈(dc), isolated
- 50.00 K = \*\*Dual solid state relay, Form A, 0.5A, without contact suppression

**Output 3**

- NC A = None
- 25.00 B = Solid state relay, Form A, 0.5A, with RC suppression
- 25.00 C = Switched dc, isolated
- 30.00 J = Electromechanical relay<sup>1</sup>, Form A or B, 5A, without contact suppression
- 25.00 K = \*\*Solid state relay, Form A, 0.5A, without contact suppression
- 45.00 M = Retransmit, 0-20mA≈(dc), 4-20mA≈(dc), isolated
- 45.00 N = Retransmit, 0-5V≈(dc), 1-5V≈(dc), 0-10 dc, isolated
- 25.00 T = External signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)

**Output 4**

- NC A = None
- 25.00 B = Solid state relay, Form A, 0.5A, with RC suppression
- 25.00 C = Switched dc or open collector, isolated
- 30.00 D = Electromechanical relay<sup>1</sup>, Form C, 5A, with RC suppression
- 30.00 E = Electromechanical relay<sup>1</sup>, Form C, 5A, without contact suppression
- 25.00 K = \*\*Solid state relay, Form A, 0.5A, without contact suppression
- 110.00 R = EIA/TIA-232 communications, opto-isolated
- 110.00 S = EIA/TIA-485 Modbus®, EIA/TIA-422 communications, opto-isolated
- 110.00 U = EIA/TIA-232, EIA/TIA-485 Modbus® communications, opto-isolated
- 25.00 T = External signal conditioner power supply, 5, 12 or 20V≈(dc) @ 30mA≈(dc)

**Display/Overlay**

- NC GG = Green/Green display
- NC GR = Green/Red display
- NC RG = Red/Green display
- NC RR = Red/Red display
- XX = Custom overlays, parameters, or software, see misc. charges

\*\*Note: If this output will drive a solenoid, MDR, contactor or other inductive device, order a Quencharc® (0804-0147-0000) for output protection. See User's Manual for wiring.

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES 998/999

### Multi-Loop Controllers

### Range Information

### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

Input	°F	°C
<b>Thermocouple</b>		
C <sup>2</sup> T/C:	32 to 4200° F	0 to 2316° C
D <sup>2</sup> T/C:	32 to 4200° F	0 to 2316° C
E T/C:	- 328 to 1470° F	- 200 to 799° C
J T/C:	32 to 1500° F	0 to 816° C
K T/C:	- 328 to 2500° F	- 200 to 1371° C
N T/C:	32 to 2372° F	0 to 1300° C
T T/C:	- 328 to 750° F	- 200 to 399° C
Pt 2 <sup>2</sup> : (Platinel 2)	32 to 2543° F	0 to 1395° C
<b>Available with universal signal conditioner</b>		
B T/C:	32 to 3300° F	0 to 1816° C
R T/C:	32 to 3200° F	0 to 1760° C
S T/C:	32 to 3200° F	0 to 1760° C
1° RTD (DIN):	- 328 to 1472° F	- 200 to 800° C
1° RTD (JIS):	- 328 to 1166° F	- 200 to 630° C
0.1° RTD:	- 99.9 to 999.9° F	- 73.3 to 537.7° C
<b>Process</b>		
0-5V <sup>∓</sup> (dc):	- 999 to 9999 units	
1-5V <sup>∓</sup> (dc):	- 999 to 9999 units	
0-10V <sup>∓</sup> (dc):	- 999 to 9999 units	
0-20mA <sup>∓</sup> (dc):	- 999 to 9999 units	
4-20mA <sup>∓</sup> (dc):	- 999 to 9999 units	

<sup>2</sup>Not an ANSI symbol

### Miscellaneous Charges

#### 1. Product Returns for Credit:

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment. Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

#### 2. Custom Set-up parameters:

- \$250 net one-time charge to fully document custom set-up parameters.
- Custom parameters \$10 list price adder.

- \$50 net set up charge applies to orders of less than 10 pieces for controllers with software set up requirements.

#### 3. Artwork/Private Label Charge:

- \$350 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.
- \$100 net set-up charge applies to orders of less than 10 pieces.
- Custom overlay \$10 list price adder.

- Orders with custom overlays require 10 working days lead time.

#### 4. Software Modification Charge:

- Consult factory for quote package and availability. **A \$50 net set-up charge applies to orders of less than 10 pieces for controllers with custom software requirements.**
- Custom software \$50 list price adder.

### Replacement Parts and Accessories

Price	Part No.	Description
\$ 3.00	0822 - 0438 - P000	Mounting collar
7.00	Z100 - 0636 - 0000	Mounting brackets (Retainer Kits) Qty 2
5.00	0822 - 0444 - P000	Protective terminal cover
5.00	0830 - 0425 - 0000	Internal bezel gasket
4.00	0830 - 0424 - 0000	Case gasket
12.00	0003 - 0103 - 0000	Electromechanical relay, 5A (solder in)
12.00	0842 - 0164 - 0000	Solid state relay, 0.5A (solder in)
6.00	0804 - 0147 - 0000	Quencharc <sup>®</sup> RC suppressor
30.00	Z100 - 0635 - 0000	Case only (no labels)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES CF

### Basic On-Off Temperature Controllers

To order, complete the code number on the right with the information below:

Price:  
\$70.00

On-off controller, fixed set point, no user interface

**Power Supply**

- NC B = 120V~(ac), switched dc output
- 30.00 C = 120V~(ac), eight amp relay output
- NC D = 230-240V~(ac), switched dc output
- 30.00 E = 230-240V~(ac), eight amp relay output
- 25.00 F = 24V~(ac), switched dc output
- 55.00 G = 24V~(ac), eight amp relay output

**Package**

- 15.00 1 = Panel mount, 1/8 DIN square - spade terminals
- 25.00 2 = DIN-rail mount - spade terminals
- NC 3 = Open board, non potted - spade terminals
- 20.00 4 = Potted case - spade terminals
- 20.00 5 = Panel mount, 1/8 DIN square - screw terminals
- 30.00 6 = DIN-rail mount - screw terminals
- 5.00 7 = Open board, non potted - screw terminals

**Sensor Type & Scale**

- NC H = T/C Type J Fahrenheit (-346 to 1900°F)
- NC J = T/C Type J Celsius (-210 to 1038°C)
- NC K = T/C Type K Fahrenheit (-454 to 2500°F)
- NC L = T/C Type K Celsius (-270 to 1370°C)
- NC M = T/C Type T Fahrenheit (-454 to 750°F)
- NC N = T/C Type T Celsius (-270 to 400°C)
- NC P = RTD Fahrenheit (-328 to 1472°F)
- NC R = RTD Celsius (-200 to 800°C)
- NC S = T/C Type E Fahrenheit (-328 to 1470°F)
- NC T = T/C Type E Celsius (-200 to 800°C)

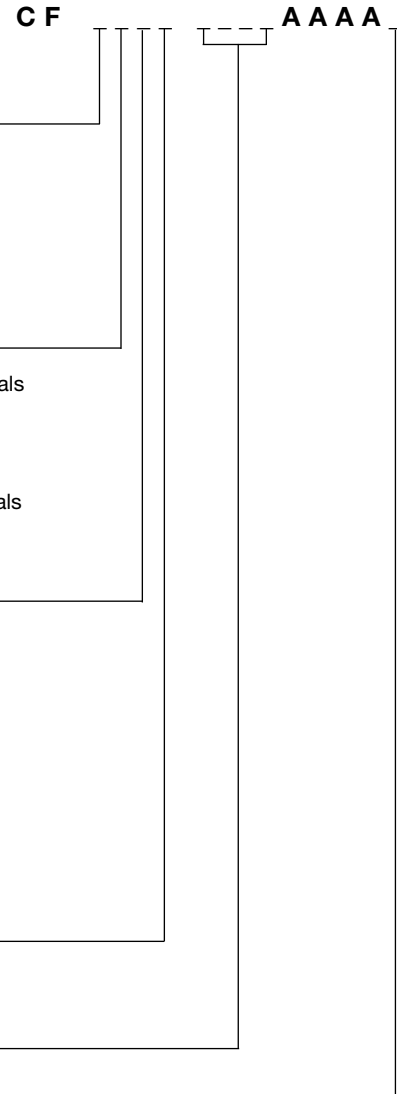
**Control Type**

- NC H = Heat
- NC C = Cool

**Fixed Set Point Temperature Value<sup>①</sup>**

**Overlay/Custom Options<sup>②</sup>**

- A = Standard with Watlow logo
- 1 = Standard without Watlow logo



<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

<sup>①</sup> A (-) is used in the left most digit of the fixed set point indicates a negative temperature value

<sup>②</sup> Open Board and Potted products do not include overlays. For non custom products, order Option A at this position

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES CV

### Basic On-Off Temperature Controllers

To order, complete the code number on the right with the information below:

Price:  
\$100.00

**CV**

On-off controller, rotary set point adjustment with tactile key order option, four character seven segment display, 1/2 DIN square package

**Power Supply**

- NC B = 120V~(ac), switched dc output
- 30.00 C = 120V~(ac), eight amp relay output
- NC D = 230-240V~(ac), switched dc output
- 30.00 E = 230-240V~(ac), eight amp relay output
- 25.00 F = 24V~(ac), switched dc output
- 55.00 G = 24V~(ac), eight amp relay output

**Package**

- NC 1 = Panel mount, 1/2 DIN square (spade terminals)
- 10.00 2 = DIN-rail mount (spade terminals)
- 5.00 5 = Panel mount, 1/2 DIN square (screw terminals)
- 15.00 6 = DIN-rail mount (screw terminals)
- 10.00 A = NEMA 4X panel mount, tactile keys (spade terminals)
- 10.00 B = DIN-rail mount, tactile keys (spade terminals)
- 15.00 C = NEMA 4X panel mount, tactile keys (screw terminals)
- 15.00 D = DIN-rail mount, tactile keys (screw terminals)

**Sensor Type and Scale**

- NC H = T/C Type J Fahrenheit (-346 to 1900°F)
- NC J = T/C Type J Celsius (-210 to 1038°C)
- NC K = T/C Type K Fahrenheit (-454 to 2500°F)
- NC L = T/C Type K Celsius (-270 to 1370°C)
- NC M = T/C Type T Fahrenheit (-454 to 750°F)
- NC N = T/C Type T Celsius (-270 to 400°C)
- NC P = RTD Fahrenheit (-328 to 1472°F)
- NC R = RTD Celsius (-200 to 800°C)
- NC S = T/C Type E Fahrenheit (-328 to 1470°F)
- NC T = T/C Type E Celsius (-200 to 800°C)

**Control Type**

- NC H = Heat
- NC C = Cool

**Low Set Point Operating Range Value**<sup>①</sup>

**High Set Point Operating Range Value**<sup>①</sup>

**Overlay/Custom Options**

- A = Standard, show set point only with Watlow logo
- B = Push to show process with Watlow logo
- C = Push to adjust set point with Watlow logo
- D = Show process push to adjust with Watlow logo
- 1 = Standard without Watlow logo
- 2 = Push to show process without Watlow logo
- 3 = Push to adjust set point without Watlow logo
- 4 = Show process push to adjust set point without Watlow logo

<sup>①</sup> A (-) is used in the left most digit of the fixed set point indicates a negative temperature value

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES LF

### Basic Limit Controllers

To order, complete the code number on the right with the information below:

<p><b>Price:</b> \$100.00</p> <p>NC C = 120V~(ac) NC E = 230 to 240V~(ac) 25.00 G = 24V~(ac)</p> <p>15.00 1 = Panel mount, 1/8 DIN square - spade terminals 25.00 2 = DIN-rail mount - spade terminals NC 3 = Open, non potted - spade terminals 20.00 4 = Potted case - spade terminals 20.00 5 = Panel mount, 1/8 DIN square - screw terminals 30.00 6 = DIN-rail mount - screw terminals 5.00 7 = Open, non potted - screw terminals</p> <p>NC H = T/C Type J Fahrenheit (-346 to 1900°F) NC J = T/C Type J Celsius (-210 to 1038°C) NC K = T/C Type K Fahrenheit (-454 to 2500°F) NC L = T/C Type K Celsius (-270 to 1370°C) NC M = T/C Type T Fahrenheit (-454 to 750°F) NC N = T/C Type T Celsius (-270 to 400°C) NC P = RTD Fahrenheit (-328 to 1472°F) NC R = RTD Celsius (-200 to 800°C) NC S = T/C Type E Fahrenheit (-328 to 1470°F) NC T = T/C Type E Celsius (-200 to 800°C)</p> <p>NC U = High limit manual reset NC W = High limit auto reset NC Y = Low limit manual reset NC Z = Low limit auto reset</p>	<p><b>Power Supply</b></p> <p><b>Package</b></p> <p><b>Sensor Type &amp; Scale</b></p> <p><b>Limit Type</b></p> <p><b>Fixed Set Point Temperature Value</b><sup>①</sup></p> <p><b>Overlay/Custom Options</b><sup>②</sup></p> <p>A = Standard with Watlow logo 1 = Standard without Watlow logo</p>	<p><b>L F</b></p> <p><b>A A A A</b></p>
--	--	---

<sup>1</sup>Electromechanical relays warranted for 100,000 closures only. Solid state switching devices recommended for applications requiring fast cycle times or extended service life.

<sup>①</sup> A (-) is used in the left most digit of the fixed set point indicates a negative temperature value

<sup>②</sup> Open Board and Potted products do not include overlays. For non custom products, order Option A at this position

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES LV

### Basic Limit Controllers

To order, complete the code number on the right with the information below:

Price:  
\$130.00

Limit control with 8 amp relay output, 1/2 DIN square four character seven segment display, rotary encoder with tactile key order option, reset switch

**Power Supply**

- NC C = 120V~(ac)
- NC E = 230 to 240V~(ac)
- 25.00 G = 24V~(ac)

**Package**

- NC 1 = Panel mount (spade terminals)
- 10.00 2 = DIN-rail mount (spade terminals)
- 5.00 5 = Panel mount (screw terminals)
- 15.00 6 = DIN-rail mount (screw terminals)
- 10.00 A = NEMA 4X panel mount, tactile keys (spade terminals)
- 10.00 B = DIN-rail mount, tactile keys (spade terminals)
- 15.00 C = NEMA 4X panel mount, tactile keys (screw terminals)
- 15.00 D = DIN-rail mount, tactile keys (screw terminals)

**Sensor Type and Scale**

- NC H = T/C Type J Fahrenheit (-346 to 1900°F)
- NC J = T/C Type J Celsius (-210 to 1038°C)
- NC K = T/C Type K Fahrenheit (-454 to 2500°F)
- NC L = T/C Type K Celsius (-270 to 1370°C)
- NC M = T/C Type T Fahrenheit (-454 to 750°F)
- NC N = T/C Type T Celsius (-270 to 400°C)
- NC P = RTD Fahrenheit (-328 to 1472°F)
- NC R = RTD Celsius (-200 to 800°C)
- NC S = T/C Type E Fahrenheit (-328 to 1470°F)
- NC T = T/C Type E Celsius (-200 to 800°C)

**Limit Type**

- NC U = High limit manual reset
- NC W = High limit auto reset
- NC Y = Low limit manual reset
- NC Z = Low limit auto reset

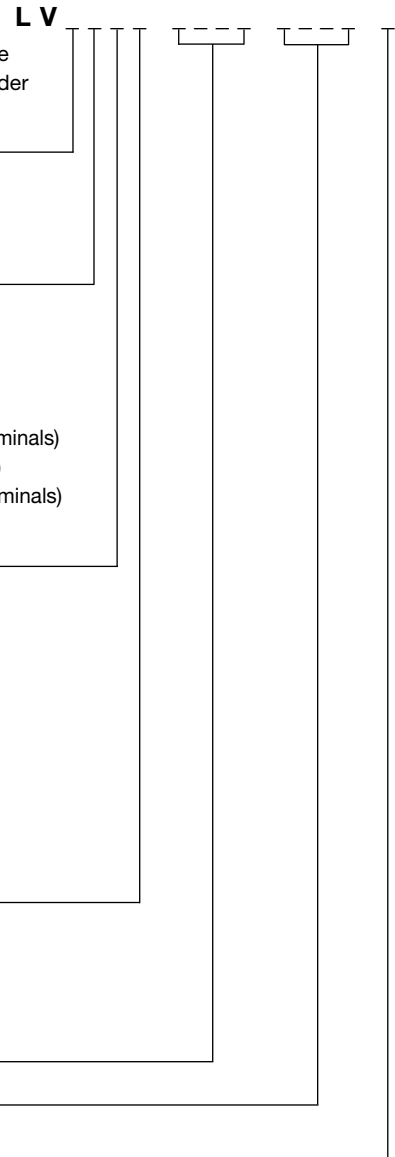
**Low Set Point Operating Range Value**<sup>①</sup>

**High Set Point Operating Range Value**<sup>①</sup>

**Overlay/Custom Options**

- A = Standard with Watlow logo
- 1 = Standard without Watlow logo

<sup>①</sup> A (-) is used in the left most digit of the fixed set point indicates a negative temperature value



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES TM

To order, complete the code number on the right with the information below:

### Temperature Meters

**Price:**

\$95.00

Indicator only, four character seven segment display

**Power Supply**

- NC B = 120V~(ac)
- NC D = 230 - 240V~(ac)
- 25.00 F = 24V~(ac)

**Package**

- NC 1 = Panel mount, 1/8 DIN square (spade terminals)
- 10.00 2 = DIN-rail mount (spade terminals)
- 5.00 5 = Panel mount, 1/8 DIN square (screw terminals)
- 15.00 6 = DIN-rail mount (screw terminals)
- 10.00 A = NEMA 4X panel mount (spade terminals)
- 15.00 C = NEMA 4X panel mount (screw terminals)

**Sensor Type and Scale**

- NC H = T/C Type J Fahrenheit (-346 to 1900°F)
- NC J = T/C Type J Celsius (-210 to 1038°C)
- NC K = T/C Type K Fahrenheit (-454 to 2500°F)
- NC L = T/C Type K Celsius (-270 to 1370°C)
- NC M = T/C Type T Fahrenheit (-454 to 750°F)
- NC N = T/C Type T Celsius (-270 to 400°C)
- NC P = RTD Fahrenheit (-328 to 1472°F)
- NC R = RTD Celsius (-200 to 800°C)
- NC S = T/C Type E Fahrenheit (-328 to 1470°F)
- NC T = T/C Type E Celsius (-200 to 800°C)

**Overlay/Custom Options**

- A = Standard with Watlow logo
- 1 = Standard without Watlow logo

T M A A A A A A A A

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES CF, CV, LF, LV and TM

#### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

#### Miscellaneous Charges

**1. \*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all (non-potted) returned controllers and accessories in like new condition and within 120 days after shipment. Potted controllers are **not** returnable.

\*Prior approval and an RMA number are required when you return a product for credit or repair.

**2. Artwork/Private Label Charge:**

- \$350 net one-time charge for custom front panels in two colors, black and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.
- **Custom overlay \$10 list price adder.**
- **Contact factory for price and availability.**

#### Accessories

Price	Part No.	Description
\$ 4.60	0822-0546-P000	Mounting collar
6.80	0822-0669-0000	DIN-rail bracket
9.00	0003-0189-0000	Electromechanical relay
5.00	Z100-0832-0000	Insulated quick connect termination kit
1.50	0822-0668-0000	Knob
5.00	0836-1319-0002	2-pin connector header
5.00	0836-1319-0003	3-pin connector header
10.00	0836-1321-0005	5-pin connector header
5.00	0830-0681-0001	NEMA gasket



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES F4S

Single Channel Ramping Controller

Price  
\$900.00

To order, complete the code number with the information below:

F4 S - A -

**SERIES F4 - Single Channel Ramping Controller**  
 1 Universal Analog Input  
 4 Digital Event Inputs, EIA232/485 Modbus® comms, 8 Digital Event Outputs, 2 Alarms, 40 Files, 256 Steps

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 50.00 L = 24 to 28V≈(ac/dc)

**Output 1A**

- NC C = Open collector/switched dc
- 25.00 K = \*Solid state relay, Form A, 0.5A
- 50.00 F = Process, 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA

**Output 1B**

- NC A = None
- 25.00 C = Open collector/switched dc
- 25.00 K = \*Solid state relay, Form A, 0.5A
- 50.00 F = Process, 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA

**Auxiliary Input Module**

- NC 0 = None
- 100.00 6 = Dual universal inputs

**Auxiliary Retransmit Module**

- NC 0 = None
- 50.00 1 = Single retransmit output 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
- 100.00 2 = Dual retransmit outputs 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA

**Language Option**

- NC 1 = English with 100Ω RTD
- NC 2 = German with 100Ω RTD
- NC 3 = French with 100Ω RTD
- NC 4 = Spanish with 100Ω RTD
- NC 5 = English with 500 and 1kΩ RTD
- NC 6 = German with 500 and 1kΩ RTD
- NC 7 = French with 500 and 1kΩ RTD
- NC 8 = Spanish with 500 and 1kΩ RTD

**Display**

- RG = Red/Green (Standard, no other display options available)
- XX = Custom Overlays, Setting Parameters or Software. See misc. charges

\*Note: If this output will drive a solenoid, MDR, contactor or other inductive device, order a Quencharc® (0804-0147-0000) for output protection. See user's manual for wiring.

Accessories/Replacement Parts: See page 39

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES F4S

#### Single Channel Ramping Controller

#### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

#### Accessories/Replacement Parts

See page 39

### Miscellaneous Charges

#### 1. Product Returns for Credit:

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment.

Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

#### 2. Custom Set-up parameters:

- \$250 net one-time charge to fully document custom set-up parameters.
- **Custom parameters \$10 list price adder.**

#### 3. Artwork/Private Label Charge:

- \$350 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.
- **Custom overlay \$10 list price adder (2 colors or less).**

#### 4. Software Modification Charge:

Consult factory for quote package and availability.

- **Custom software \$75 list price adder.**

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES F4D

### Dual Channel Ramping Controller

Price	To order, complete the code number with the information below:
\$1,050.00	<b>SERIES F4 - Dual Channel Ramping Controller</b> <span style="float: right;">F4 D - - - - -</span>
	3 Universal Analog Inputs
	4 Digital Event Inputs, EIA232/485 Modbus® comms, 8 Digital Event Outputs, 2 Alarms, 40 Files, 256 Steps
	<b>Power Supply</b>
NC	H = 100 to 240V≈(ac/dc)
50.00	L = 24 to 28V≈(ac/dc)
	<b>Output 1A</b>
NC	C = Open collector/switched dc
25.00	K = *Solid state relay, Form A, 0.5A
50.00	F = Process, 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
	<b>Output 1B</b>
NC	A = None
25.00	C = Open collector/switched dc
25.00	K = *Solid state relay, Form A, 0.5A
50.00	F = Process, 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
	<b>Output 2A</b>
NC	C = Open collector/switched dc
25.00	K = *Solid state relay, Form A, 0.5A
50.00	F = Process, 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
	<b>Output 2B</b>
NC	A = None
25.00	C = Open collector/switched dc
25.00	K = *Solid state relay, Form A, 0.5A
50.00	F = Process, 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
	<b>Auxiliary Retransmit Module</b>
NC	0 = None
50.00	1 = Single retransmit output 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
100.00	2 = Dual retransmit outputs 0-5, 1-5, 0-10V≈(dc), 0-20, 4-20mA
	<b>Language Option</b>
NC	1 = English with 100Ω RTD
NC	2 = German with 100Ω RTD
NC	3 = French with 100Ω RTD
NC	4 = Spanish with 100Ω RTD
NC	5 = English with 500 and 1kΩ RTD
NC	6 = German with 500 and 1kΩ RTD
NC	7 = French with 500 and 1kΩ RTD
NC	8 = Spanish with 500 and 1kΩ RTD
	<b>Display</b>
	RG = Red/Green (Standard, no other display options available)
	XX = Custom Overlays, Setting Parameters or Software, see misc. charges

\*Note: If this output will drive a solenoid, MDR, contactor or other inductive device, order a Quencharc® (0804-0147-0000) for output protection. See user's manual for wiring.

**Accessories/Replacement Parts: See page 39**

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES F4D

Dual Channel Ramping Controller

### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Accessories/Replacement Parts

See page 39

## Miscellaneous Charges

### 1. Product Returns for Credit:

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment.

Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

### 2. Custom Set-up parameters:

- \$250 net one-time charge to fully document custom set-up parameters.
- Custom parameters \$10 list price adder.

### 3. Artwork/Private Label Charge:

- \$350 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.
- Custom overlay \$10 list price adder (2 colors or less).

### 4. Software Modification Charge:

- Consult factory for quote package and availability.
- Custom software \$75 list price adder.

## Optional External Auxiliary Event Board<sup>1</sup>

To order, complete the code number with the information below:

A 0 0 7 - 1 7 3 2 - F 4

<p><b>Price</b></p> <p>\$140.00</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p>	<p><b>Control</b></p> <p>Auxiliary event board = Remote event/alarm output board</p> <p><b>Cable Length</b></p> <p>F4 = 18.0 in. (457 mm)</p> <p>Other lengths, consult factory</p> <p><b>Event Output</b></p> <p>C2 = (2) event outputs, switched dc, non-isolated</p> <p>C8 = (8) event outputs, switched dc, non-isolated</p> <p>B2 = (2) event outputs, solid state relay, Form A, 0.5A, RC contact suppression</p> <p>B8 = (8) event outputs, solid state relay, Form A, 0.5 A, RC contact suppression</p> <p>K2 = (2) event outputs, solid state relay, Form A, 0.5 A, without RC contact suppression</p> <p>K8 = (8) event outputs, solid state relay, Form A, 0.5A, without RC contact suppression</p>	
---	--	--

<sup>1</sup>Note: Requires 120V $\approx$ (ac/dc) input. Provides dc voltage to operate up to 8 events and 1 transducer (e.g. a Vaisala RH sensor). The output power supply varies between 21 to 33V $\approx$ (dc) maximum current output of 25mA.

Refer to 0600-0032-0012 for wiring diagram.

### Availability

Consult with Customer Service. Generally 7-10 working days.

# Temperature and Process Controllers

F.O.B.: Winona, Minnesota

## SERIES F4P

¼ DIN Temperature Process Controller

To order, complete the code number with the information below:

<p>Price</p> <p>\$770.00</p> <p>NC</p> <p>50.00</p> <p>NC</p> <p>30.00</p> <p>25.00</p> <p>50.00</p> <p>NC</p> <p>25.00</p> <p>30.00</p> <p>25.00</p> <p>50.00</p> <p>NC</p> <p>**100.00</p> <p>NC</p> <p>50.00</p> <p>100.00</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p> <p>NC</p>	<p><b>SERIES F4 - Single Channel Temperature/Process Controller</b> 2 Alarms, EIA232/485 Modbus™ comms, 4 digital inputs</p> <p><b>Power Supply</b> H = 100 to 240V ≈(ac/dc) L = 24 to 28V ≈(ac/dc)</p> <p><b>Output 1A</b> C = Open collector/switched dc E = *Mechanical relay, 2 amp @ 250V K = *Solid state relay, Form A, 0.5A F = Process, 0-5, 1-5, 0-10V ≈(dc), 0-20, 4-20mA</p> <p><b>Output 1B</b> A = None C = Open collector/switched dc E = *Mechanical relay, 2 amp @ 250V K = *Solid state relay, Form A, 0.5A F = Process, 0-5, 1-5, 0-10V ≈(dc), 0-20, 4-20mA</p> <p><b>Control Operation</b> A = Standard Control Operation B = Enhanced Control Operation: Dual Universal Inputs, Cascade, Ratio, Differential, Slidewire, Remote Set Point, Alternate Input</p> <p><b>Auxiliary Retransmit Module</b> 0 = None 1 = Single retransmit output 0-5, 1-5, 0-10V ≈(dc), 0-20, 4-20mA 2 = Dual retransmit outputs 0-5, 1-5, 0-10V ≈(dc), 0-20, 4-20mA</p> <p><b>Language Option</b> 1 = English with 100Ω RTD 2 = German with 100Ω RTD 3 = French with 100Ω RTD 4 = Spanish with 100Ω RTD 5 = English with 500 and 1kΩ RTD 6 = German with 500 and 1kΩ RTD 7 = French with 500 and 1kΩ RTD 8 = Spanish with 500 and 1kΩ RTD</p> <p><b>Display</b> RG = Red/Green (Standard, no other display options available) XX = Custom Options: Custom overlays, setting parameters, or software, see misc. charges</p>	<p><b>F4P</b> - <b>A</b> -</p>
---	--	--------------------------------

\*Note: If this output will drive a solenoid, MDR, contactor or other inductive device, order a Quencharc® (0804-0147-0000) for output protection. See user's manual for wiring.

\*\*This is a factory order option only. RMA required if needed in the after-market.

# Temperature and Process Controllers

F.O.B.: Winona, Minnesota

## SERIES F4P

¼ DIN Temperature Process Controller

### Availability

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1. Product Returns for Credit:**

There is a 20 percent of net charge for all units returned for credit. Product must be in like new condition and within 120 days after shipment.

Customized products cannot be returned for credit. Prior approval and an RMA number are required when you return a product for credit.

**2. Custom Set-up parameters:**

- \$250 one-time charge to fully document custom set-up parameters.

- **Custom parameters \$10 list price adder.**

**3. Artwork/Private Label Charge:**

- \$350 one-time charge for custom front panels in 2 colors, black and white only.

- Other colors available with \$250 net set-up charge per order, consult factory.

- **Custom overlay \$10 list price adder (2 colors or less).**

**4. Software Modification Charge:**

Consult factory for quote package and availability.

- **Custom software \$75 list price adder.**

## Series F4 Replacement Parts Pricing

### Replacement I/O Modules

List Price	Code No.	Module Type
\$ 50.00	<b>Z100-0745-0001</b>	Solid State Relay 0.5 Amp
50.00	<b>Z100-0745-0002</b>	Open Collector/Switched dc
75.00	<b>Z100-0745-0003</b>	Process Output
*125.00	<b>Z100-0745-0004</b>	Dual Universal Input
75.00	<b>Z100-0745-0005</b>	Single Universal Input
75.00	<b>Z100-0745-0006</b>	Retransmit Output
**60.00	<b>Z100-0745-0007</b>	2 Amp Mechanical Relay

\* If adding to the F4P, call the factory for an RMA number. This option is not field upgradeable in the F4P. (It is for the F4S).

\*\* Not for use on an F4 Ramping Controller.

### Replacement I/O Connectors

List Price	Code No.	Connector Locators
\$ 15.00	<b>0836-0499-0000</b>	1 - 16 Comms
15.00	<b>0836-0500-0000</b>	17 - 32 Events
10.00	<b>0836-0501-0000</b>	33 - 35 Output 2B
10.00	<b>0836-0502-0000</b>	36 - 38 Output 2A
10.00	<b>0836-0503-0000</b>	39 - 41 Output 1B
10.00	<b>0836-0504-0000</b>	42 - 44 Output 1A
10.00	<b>0836-0505-0000</b>	45 - 47 Retrans 1
10.00	<b>0836-0506-0000</b>	48 - 50 Retrans 2
12.00	<b>0836-0507-0000</b>	51 - 58 Inputs 2 & 3
10.00	<b>0836-0508-0000</b>	59 - 62 Input 1

### Miscellaneous Replacement Parts

List Price	Code No.	Description
\$ 4.00	<b>0822-0572-0000</b>	Mounting Collar
6.00	<b>Z100-0757-0000</b>	Mounting Bracket
5.00	<b>0830-0489-0000</b>	Case Gasket
6.00	<b>0804-0147-0000</b>	Quencharc®
20.00	<b>0238-0741-0000</b>	Overlay, F4P
20.00	<b>0238-0742-0000</b>	Overlay, F4S
20.00	<b>0238-0743-0000</b>	Overlay, F4D

### Software Products

List Price	Description	Web Path
N/C	<b>WATVIEW Demo</b>	<a href="http://www.watlow.com/products/software/watview.cfm">www.watlow.com/products/software/watview.cfm</a>
N/C	<b>F4 On-line Firmware</b>	<a href="http://www.watlow.com/f4">www.watlow.com/f4</a>
N/C	<b>F4S/D On-line Demo</b>	<a href="http://www.watlow.com/f4">www.watlow.com/f4</a> (Ramping only)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/32 DIN PID and Ramping Controller

### Panel Mount PID and Ramping Controllers

**Price:**

\$160.00

To order, complete the code number to the right with the information below:

SD3 - A - A A

**SERIES SD = Single channel PID and Ramping controller with universal input**

**Controller Type**

- NC C = Control
- 75.00 R = Ramping
- NC E = Control with TRU-TUNE+™

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 30.00 L = 24 to 28V≈(ac/dc)

**Output One**

- NC C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 40.00 F = Universal process

**Output Two**

- NC A = None
- 25.00 C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus® comms

**Display Colors and Custom Options**

- NC RG = Red Green\* (with Watlow name and SD logo)
- NC AA = Red Green (SD logo only)
- 10.00 XX = Custom overlay
- 75.00 YY = Custom firmware
- 10.00 ZZ = Custom parameters

\*Red Green are the only display colors available on the 1/32 DIN product.

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES SD 1/32 DIN PID and Ramping Controller

Panel Mount PID and Ramping Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P001	DIN-Rail mounting bracket
3.00	0822-0465-P000	Mounting collar
5.00	0830-0603-0000	Case gasket
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0000	English PID and ramping user manual
15.00	0600-0041-0001	French PID and ramping user manual
15.00	0600-0041-0002	German PID and ramping user manual
15.00	0600-0041-0003	Spanish PID and ramping user manual
15.00	0600-0041-0004	Italian PID and ramping user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1080-0003	SD3C PID overlay with Watlow name and logo
20.00	0238-1080-0006	SD3C PID overlay, SD logo only
20.00	0238-1080-0007	SD3R ramping overlay with Watlow name and logo
20.00	0238-1080-0008	SD3R ramping overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/16 DIN PID and Ramping Controller

### Panel Mount PID and Ramping Controllers

Price:  
\$180.00

To order, complete the code number to the right with the information below:

S D 6 - - A

**SERIES SD = Single channel PID and ramping controller with universal input**

**Controller Type**

- NC C = Control
- 75.00 R = Ramping
- NC E = Control with TRU-TUNE+™

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 30.00 L = 24 to 28V≈(ac/dc)

**Output One**

- NC C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 40.00 F = Universal process

**Output Two**

- NC A = None
- 25.00 C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus® comms

**Output Three**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 E = Mechanical relay, Form C, 5A
- 40.00 F = Universal process

**Infrared (IR) Comms Options**

- NC A = None
- 50.00 R = IR ready (Not available with TRU-TUNE+™)

**Display Colors and Custom Options**

- NC RG = Red Green (with Watlow name and SD logo)
- NC RR = Red Red (with Watlow name and SD logo)
- NC AA = Red Green (Non IrDA, SD logo only)
- NC AB = Red Green (IrDA, SD logo only)
- NC AC = Red Red (Non IrDA, SD logo only)
- NC AD = Red Red (IrDA, SD logo only)
- 10.00 XX = Custom overlay
- 75.00 YY = Custom firmware
- 10.00 ZZ = Custom parameters

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES SD 1/16 DIN PID and Ramping Controller

Panel Mount PID and Ramping Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

#### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

#### Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P002	DIN-Rail mounting bracket
6.00	Z100-0723-0000	Mounting bracket with screws
2.00	0822-0549-0001	Retention collar
6.00	0830-0466-0000	Case gasket
10.00	0836-0559-0000	Three position output three connector
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC Suppressor
15.00	0600-0041-0000	English PID and ramping user manual
15.00	0600-0041-0001	French PID and ramping user manual
15.00	0600-0041-0002	German PID and ramping user manual
15.00	0600-0041-0003	Spanish PID and ramping user manual
15.00	0600-0041-0004	Italian PID and ramping user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1081-0000	SD6C IrDA/PID overlay with Watlow name and logo
20.00	0238-1081-0003	SD6C Non-IrDA/PID overlay with Watlow name and logo
20.00	0238-1081-0009	SD6C IrDA/PID overlay, SD logo only
20.00	0238-1081-0006	SD6C Non-IrDA/PID overlay, SD logo only
20.00	0238-1081-0002	SD6R IrDA/ramping overlay with Watlow name and logo
20.00	0238-1081-0005	SD6R Non-IrDA/ramping overlay with Watlow name and logo
20.00	0238-1081-0011	SD6R IrDA/ramping overlay, SD logo only
20.00	0238-1081-0008	SD6R Non-IrDA/ramping overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/8 DIN PID and Ramping Controller

### Panel Mount PID and Ramping Controllers

To order, complete the code number to the right with the information below:

**Price:**

\$231.50

**SERIES SD = Single channel PID and ramping controller with universal input**

**Mounting Orientation**

- NC 8 = Vertical 1/8 DIN
- NC 9 = Horizontal 1/8 DIN

**Controller Type**

- NC C = Control
- 75.00 R = Ramping
- NC E = Control with TRU-TUNE+™

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 30.00 L = 24 to 28V≈(ac/dc)

**Output One**

- NC C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 40.00 F = Universal process

**Output Two**

- NC A = None
- 25.00 C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus® comms

**Output Three**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 E = Mechanical relay, Form C, 5A
- 40.00 F = Universal process

**Infrared (IR) Comms Options**

- NC A = None
- 50.00 R = IR ready (Not available with TRU-TUNE+™)

**Display Colors and Custom Options**

- NC RG = Red Green (with Watlow name and SD logo)
- NC RR = Red Red (with Watlow name and SD logo)
- NC AA = Red Green (Non IrDA, SD logo only)
- NC AB = Red Green (IrDA, SD logo only)
- NC AC = Red Red (Non IrDA, SD logo only)
- NC AD = Red Red (IrDA, SD logo only)
- 10.00 XX = Custom overlay (Note: Requires a one time set-up NRE charge of \$350.00 net)
- 75.00 YY = Custom firmware (Note: Contact factory for NRE charge)
- 10.00 ZZ = Custom parameters (Note: Requires a one time set-up NRE charge of \$250.00 net)

S D - - A

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/8 DIN PID and Ramping Controller

### Panel Mount PID and Ramping Controllers

#### Availability:

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

#### 1.\*Restocking Charge:

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment. **Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when returning a product for credit.

#### 2. Custom Set-up Parameters:

- \$500 net one-time charge to fully document custom set-up parameters.
- **Custom parameters \$10 list price adder.**

#### 3. Artwork / Private Label Charge:

- \$700 net one-time charge for custom front panels in three colors, black, red and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.

- \$250 net set-up charge applies to orders of less than 10 pieces.

- **Custom overlay \$10 list price adder.**

#### 4. Software Modification Charge:

- Consult factory for quote package and availability. **A \$50 net setup charge applies to orders of less than 10 pieces for controllers with custom software requirements.**
- **Custom software \$75 list price adder.**

### Accessories

Price	Part No.	Description
\$ 6.00	Z100-0809-0000	Mounting bracket with screws
3.00	0822-0600-P000	SD8X mounting collar
3.00	0822-0601-P000	SD9X mounting collar
5.00	0830-0539-0000	SD8X case gasket
5.00	0830-0641-0000	SD9X case gasket
10.00	0836-0559-0000	Three position output three connector
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0000	English PID and ramping user manual
15.00	0600-0041-0001	French PID and ramping user manual
15.00	0600-0041-0002	German PID and ramping user manual
15.00	0600-0041-0003	Spanish PID and ramping user manual
15.00	0600-0041-0004	Italian PID and ramping user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> Female six foot cable
20.00	0238-1082-0000	SD8C IrDA PID Overlay with Watlow name and logo
20.00	0238-1082-0003	SC8C Non-IrDA PID overlay with Watlow name and logo
20.00	0238-1082-0009	SD8C IrDA PID overlay, SD logo only
20.00	0238-1082-0006	SC8C Non-IrDA PID overlay, SD logo only
20.00	0238-1083-0000	SD9C IrDA PID overlay with Watlow name and logo
20.00	0238-1083-0003	SC9C Non-IrDA PID overlay with Watlow name and logo
20.00	0238-1083-0009	SD9C IrDA PID overlay, SD logo only
20.00	0238-1083-0006	SC9C Non-IrDA PID overlay, SD logo only
20.00	0238-1082-0002	SD8R IrDA Ramping overlay with Watlow name and logo
20.00	0238-1082-0005	SC8R Non-IrDA ramping overlay with Watlow name and logo
20.00	0238-1082-0011	SD8R IrDA ramping overlay, SD logo only
20.00	0238-1082-0008	SC8R Non-IrDA ramping overlay, SD logo only
20.00	0238-1083-0002	SD9R IrDA ramping overlay with Watlow name and logo
20.00	0238-1083-0005	SC9R Non-IrDA ramping overlay with Watlow name and logo
20.00	0238-1083-0011	SD9R IrDA ramping overlay, SD logo only
20.00	0238-1083-0008	SC9R Non-IrDA ramping overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD ¼ DIN PID and Ramping Controller

Panel Mount PID and Ramping Controllers

Price:  
\$251.50

To order, complete the code number to the right with the information below:

SD 4 - - A

**SERIES SD = Single channel PID and ramping controller with universal input**

**Controller Type**

- NC C = Control
- 75.00 R = Ramping
- NC E = Control with TRU-TUNE+™

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 30.00 L = 24 to 28V≈(ac/dc)

**Output One**

- NC C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 40.00 F = Universal process

**Output Two**

- NC A = None
- 25.00 C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus® comms

**Output Three**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 E = Mechanical relay, Form C, 5A
- 40.00 F = Universal process

**Infrared (IR) Comms Options**

- NC A = None
- 50.00 R = IR ready (Not available with TRU-TUNE+™)

**Display Colors and Custom Options**

- NC RG = Red Green (with Watlow name and SD logo)
- NC RR = Red Red (with Watlow name and SD logo)
- NC AA = Red Green (Non IrDA, SD logo only)
- NC AB = Red Green (IrDA, SD logo only)
- NC AC = Red Red (Non IrDA, SD logo only)
- NC AD = Red Red (IrDA, SD logo only)
- 10.00 XX = Custom overlay (Note: Requires a one time set-up NRE charge of \$350.00 net)
- 75.00 YY = Custom firmware (Note: Contact factory for NRE charge)
- 10.00 ZZ = Custom parameters (Note: Requires a one time set-up NRE charge of \$250.00 net)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD ¼ DIN PID and Ramping Controller

### Panel Mount PID and Ramping Controllers

#### Availability:

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

#### 1.\*Restocking Charge:

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when returning a product for credit.

#### 2. Custom Set-up Parameters:

- \$500 net one-time charge to fully document custom set-up parameters.
- **Custom parameters \$10 list price adder.**

#### 3. Artwork / Private Label Charge:

- \$700 net one-time charge for custom front panels in three colors, black, red and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.

- \$250 net set-up charge applies to orders of less than 10 pieces.

- **Custom overlay \$10 list price adder.**

#### 4. Software Modification Charge:

- Consult factory for quote package and availability. **A \$50 net setup charge applies to orders of less than 10 pieces for controllers with custom software requirements.**
- **Custom software \$75 list price adder.**

### Accessories

Price	Part No.	Description
\$ 6.00	Z100-0757-0000	Mounting bracket with screws (standard)
2.00	0822-0572-0000	Retention collar
5.00	0822-0660-0000	Alternate bracket (V4 style; two each needed per SD4 unit)
1.50	0819-0752-0000	Screw for above alternate bracket , qty of two per bracket needed
6.00	0830-0489-0000	Case gasket
10.00	0836-0559-0000	Three position output three connector
10.00	0836-1222-0004	Four Position wiring connector
10.00	0836-1222-0006	Six Position wiring connector
10.00	0836-1224-0004	Four Position sensor wiring connector
10.00	0836-1224-0007	Seven Position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0000	English PID and ramping user manual
15.00	0600-0041-0001	French PID and ramping user manual
15.00	0600-0041-0002	German PID and ramping user manual
15.00	0600-0041-0003	Spanish PID and ramping user manual
15.00	0600-0041-0004	Italian PID and ramping user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1084-0000	SD4C IrDA PID overlay with Watlow name and logo
20.00	0238-1084-0003	SC4C Non-IrDA PID overlay with Watlow name and logo
20.00	0238-1084-0009	SD4C IrDA PID Overlay, SD logo only
20.00	0238-1084-0006	SC4C Non-IrDA PID overlay, SD logo only
20.00	0238-1084-0002	SD4R IrDA ramping overlay with Watlow name and logo
20.00	0238-1084-0005	SC4R Non-IrDA ramping overlay with Watlow name and logo
20.00	0238-1084-0011	SD4R IrDA ramping overlay, SD logo only
20.00	0238-1084-0008	SC4R Non-IrDA ramping overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/32 DIN Limit Controller

### Panel Mount Limit Controllers

**Price:**

\$161.50

To order, complete the code number to the right with the information below:

**S D 3 L - J A - A A**

**SERIES SD = Single channel limit controller with universal input**

**Power Supply**

NC H = 100 to 240V≈(ac/dc)

30.00 L = 24 to 28V≈(ac/dc)

**Output One**

30.00 J = Mechanical relay, Form A, 2A

**Output Two**

NC A = None

25.00 C = Switched dc

25.00 K = SSR Form A, 0.5A

30.00 J = Mechanical relay, Form A, 2A

75.00 U = EIA-485 Modbus® comms

**Display Colors and Custom Options**

NC RG = Red Green\* (with Watlow name and SD logo)

NC AA = Red Green\* (SD logo only)

10.00 XX = Custom overlay

75.00 YY = Custom firmware

10.00 ZZ = Custom parameters

\*Red Green are the only display colors available on the 1/32 DIN product.

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/32 DIN Limit Controller

Panel Mount Limit Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P001	DIN-Rail mounting bracket
3.00	0822-0465-P000	Mounting collar
5.00	0830-0603-0000	Case gasket
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0005	English limit user manual
15.00	0600-0041-0006	French limit user manual
15.00	0600-0041-0007	German limit user manual
15.00	0600-0041-0008	Spanish limit user manual
15.00	0600-0041-0009	Italian limit user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1080-0004	SD3L limit overlay with Watlow name and logo
20.00	0238-1080-0005	SD3L limit overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/16 DIN Limit Controller

### Panel Mount Limit Controllers

To order, complete the code number to the right with the information below:

S D 6 L - J - A

**Price:**

\$180.00

**SERIES SD = Single channel limit controller with universal input**

**Power Supply**

- NC H = 100 to 240V $\approx$ (ac/dc)
- 30.00 L = 24 to 28V $\approx$ (ac/dc)

**Output One**

- 30.00 J = Mechanical relay, Form A, 2A

**Output Two**

- NC A = None
- 25.00 C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus<sup>®</sup> comms

**Output Three**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 E = Mechanical relay, Form C, 5A
- 40.00 F = Universal process

**Infrared (IR) Comms Options**

- NC A = None
- 50.00 R = IR ready

**Display Colors and Custom Options**

- NC RG = Red Green (with Watlow name and SD logo)
- NC RR = Red Red (with Watlow name and SD logo)
- NC AA = Red Green (Non IrDA, SD logo only)
- NC AB = Red Green (IrDA, SD logo only)
- NC AC = Red Red (Non IrDA, SD logo only)
- NC AD = Red Red (IrDA, SD logo only)
- 10.00 XX = Custom overlay
- 75.00 YY = Custom firmware
- 10.00 ZZ = Custom parameters

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES SD 1/16 DIN Limit Controller

Panel Mount Limit Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P002	DIN-Rail mounting bracket
6.00	Z100-0723-0000	Mounting bracket with screws
2.00	0822-0549-0001	Retention collar
6.00	0830-0466-0000	Case gasket
10.00	0836-0559-0000	Three position output three connector
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0005	English limit user manual
15.00	0600-0041-0006	French limit user manual
15.00	0600-0041-0007	German limit user manual
15.00	0600-0041-0008	Spanish limit user manual
15.00	0600-0041-0009	Italian limit user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1081-0001	SD6L IrDA limit overlay with Watlow name and logo
20.00	0238-1081-0004	SD6L Non-IrDA limit overlay with Watlow name and logo
20.00	0238-1081-0010	SD6L IrDA limit overlay, SD logo only
20.00	0238-1081-0007	SD6L Non-IrDA limit overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/8 DIN Limit Controller

### Panel Mount Limit Controllers

**Price:**

\$231.50

To order, complete the code number to the right with the information below:

SD L - J - A

**SERIES SD = Single channel limit controller with universal input**

**Mounting Orientation**

- NC 8 = Vertical 1/8 DIN
- NC 9 = Horizontal 1/8 DIN

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 30.00 L = 24 to 28V≈(ac/dc)

**Output One**

- 30.00 J = Mechanical relay, Form A, 2A

**Output Two**

- NC A = None
- 25.00 C = Switched dc
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus® comms

**Output Three**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 E = Mechanical relay, Form C, 5A
- 40.00 F = Universal process

**Infrared (IR) Comms Options**

- NC A = None
- 50.00 R = IR ready

**Display Colors and Custom Options**

- NC RG = Red Green (with Watlow name and SD logo)
- NC RR = Red Red (with Watlow name and SD logo)
- NC AA = Red Green (Non IrDA, SD logo only)
- NC AB = Red Green (IrDA, SD logo only)
- NC AC = Red Red (Non IrDA, SD logo only)
- NC AD = Red Red (IrDA, SD logo only)
- 10.00 XX = Custom overlay (Note: Requires a one time set-up NRE charge of \$350.00 net)
- 75.00 YY = Custom firmware (Note: Contact factory for NRE charge)
- 10.00 ZZ = Custom parameters (Note: Requires a one time set-up NRE charge of \$250.00 net)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD 1/8 DIN Limit Controller

Panel Mount Limit Controllers

### Availability:

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when returning a product for credit.

**2. Custom Set-up Parameters:**

- \$500 net one-time charge to fully document custom set-up parameters.
- **Custom parameters \$10 list price adder.**

**3. Artwork / Private Label Charge:**

- \$700 net one-time charge for custom front panels in three colors, black, red and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.

- \$250 net set-up charge applies to orders of less than 10 pieces.

- **Custom overlay \$10 list price adder.**

**4. Software Modification Charge:**

- Consult factory for quote package and availability. **A \$50 net setup charge applies to orders of less than 10 pieces for controllers with custom software requirements.**
- **Custom software \$75 list price adder.**

### Accessories

Price	Part No.	Description
\$ 6.00	Z100-0809-0000	Mounting bracket with screws
3.00	0822-0600-P000	SD8X mounting collar
3.00	0822-0601-P000	SD9X mounting collar
5.00	0830-0539-0000	SD8X case gasket
5.00	0830-0641-0000	SD9X case gasket
10.00	0836-0559-0000	Three position output three connector
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0005	English limit user manual
15.00	0600-0041-0006	French limit user manual
15.00	0600-0041-0007	German limit user manual
15.00	0600-0041-0008	Spanish limit user manual
15.00	0600-0041-0009	Italian limit user manual
175.00	0830-0473-0001	RS232 -> EIA 485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA 485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1082-0001	SD8L IrDA limit overlay with Watlow name and logo
20.00	0238-1082-0004	SC8L Non-IrDA limit overlay with Watlow name and logo
20.00	0238-1082-0010	SD8L IrDA limit overlay, SD logo only
20.00	0238-1082-0007	SC8L Non-IrDA limit overlay, SD logo only
20.00	0238-1083-0001	SD9L IrDA limit overlay with Watlow name and logo
20.00	0238-1083-0004	SC9L Non-IrDA limit overlay with Watlow name and logo
20.00	0238-1083-0010	SD9L IrDA limit overlay, SD logo only
20.00	0238-1083-0007	SC9L Non-IrDA limit overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD ¼ DIN Limit Controller

### Panel Mount Limit Controllers

**Price:**

\$251.50

To order, complete the code number to the right with the information below:

SD4L - J - A

**SERIES SD = Single channel limit controller with universal input**

**Power Supply**

- NC H = 100 to 240V≈(ac/dc)
- 30.00 L = 24 to 28V≈(ac/dc)

**Output One**

- 30.00 J = Mechanical relay, Form A, 2A

**Output Two**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 J = Mechanical relay, Form A, 2A
- 75.00 U = EIA-485 Modbus® comms

**Output Three**

- NC A = None
- 25.00 C = Switched dc/open collector
- 25.00 K = SSR Form A, 0.5A
- 30.00 E = Mechanical relay, Form C, 5A
- 40.00 F = Universal process

**Infrared (IR) Comms Options**

- NC A = None
- 50.00 R = IR ready

**Display Colors and Custom Options**

- NC RG = Red Green (with Watlow name and SD logo)
- NC RR = Red Red (with Watlow name and SD logo)
- NC AA = Red Green (Non IrDA, SD logo only)
- NC AB = Red Green (IrDA, SD logo only)
- NC AC = Red Red (Non IrDA, SD logo only)
- NC AD = Red Red (IrDA, SD logo only)
- 10.00 XX = Custom overlay (Note: Requires a one time set-up NRE charge of \$350.00 net)
- 75.00 YY = Custom firmware (Note: Contact factory for NRE charge)
- 10.00 ZZ = Custom parameters (Note: Requires a one time set-up NRE charge of \$250.00 net)

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD ¼ DIN Limit Controller

Panel Mount Limit Controllers

### Availability:

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when returning a product for credit.

**2. Custom Set-up Parameters:**

- \$500 net one-time charge to fully document custom set-up parameters.
- **Custom parameters \$10 list price adder.**

**3. Artwork / Private Label Charge:**

- \$700 net one-time charge for custom front panels in three colors, black, red and white only.
- Other colors available with \$250 net set-up charge per order, consult factory.

- \$250 net set-up charge applies to orders of less than 10 pieces.

- **Custom overlay \$10 list price adder.**

**4. Software Modification Charge:**

- Consult factory for quote package and availability. **A \$50 net setup charge applies to orders of less than 10 pieces for controllers with custom software requirements.**
- **Custom software \$75 list price adder.**

### Accessories

Price	Part No.	Description
\$ 6.00	Z100-0757-0000	Mounting bracket with screws
2.00	0822-0572-0000	Retention collar
5.00	0822-0660-0000	Alternate bracket (V4 style; 2 each needed per SD4 unit)
1.50	0819-0752-0000	Screw for alternate bracket, qty of 2 per bracket needed
6.00	0830-0489-0000	Case gasket
10.00	0836-0559-0000	Three position output three connector
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0005	English limit user manual
15.00	0600-0041-0006	French limit user manual
15.00	0600-0041-0007	German limit user manual
15.00	0600-0041-0008	Spanish limit user manual
15.00	0600-0041-0009	Italian limit user manual
175.00	0830-0473-0001	RS232 -> EIA-485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA-485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> female six foot cable
20.00	0238-1084-0001	SD4L IrDA limit overlay with Watlow name and logo
20.00	0238-1084-0004	SC4L Non-IrDA limit overlay with Watlow name and logo
20.00	0238-1084-0010	SD4L IrDA limit overlay, SD logo only
20.00	0238-1084-0007	SC4L Non-IrDA limit overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD <sup>1</sup>/<sub>32</sub> DIN Panel Mount Single Display Controller with Optional Timer

Panel Mount PID  
Controllers

<p><b>Price:</b></p> <p>\$148.00</p>	<p><b>To order, complete the code number to the right with the information below:</b></p> <p><b>S D 3 1 - A - A</b></p> <p><b>SERIES SD = DIN single display PID panel mount configuration</b></p> <p><b>Power Supply</b> _____</p> <p>NC H = 100 to 240V≈(ac/dc)</p> <p>30.00 L = 24 to 28V≈(ac/dc)</p> <p><b>Output One</b> _____</p> <p>NC C = Switched dc</p> <p>25.00 K = SSR Form A, 0.5A</p> <p>30.00 J = Mechanical relay, Form A, 2A</p> <p>40.00 F = Universal process</p> <p><b>Output Two</b> _____</p> <p>NC A = None</p> <p>25.00 C = Switched dc</p> <p>25.00 K = SSR Form A, 0.5A</p> <p>30.00 J = Mechanical relay, Form A, 2A</p> <p>75.00 U = EIA-485 Modbus® Comms</p> <p><b>Control Options</b> _____</p> <p>NC A = Control</p> <p>25.00 T = Timer</p> <p><b>Single Displays, Overlays and Custom Options</b> _____</p> <p>NC 0R = Red (with Watlow name and SD logo)</p> <p>NC 0G = Green (with Watlow name and SD logo)</p> <p>NC AR = Red (SD logo only)</p> <p>NC AG = Green (SD logo only)</p> <p>10.00 XX = Custom overlay</p> <p>75.00 YY = Custom firmware</p> <p>10.00 ZZ = Custom parameters</p>
--------------------------------------	---

# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD <sup>1</sup>/<sub>32</sub> DIN Panel Mount Single Display Controller

Panel Mount PID  
Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P001	DIN-Rail mounting bracket
3.00	0822-0465-P000	Mounting collar
5.00	0830-0603-0000	Case gasket
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0010	English single display PID user manual
15.00	0600-0041-0011	French single display PID user manual
15.00	0600-0041-0012	German single display PID user manual
15.00	0600-0041-0013	Spanish single display PID user manual
15.00	0600-0041-0014	Italian single display PID user manual
175.00	0830-0473-0001	RS232 -> EIA-485 Modbus® nine-pin converter
30.00	0830-0473-0002	12V power supply for EIA-485 Modbus® converter
30.00	0830-0473-0003	Nine-pin D-sub male-> Female six foot cable
20.00	0238-1134-0003	SD31C PID overlay with Watlow name and logo
20.00	0238-1134-0006	SD31C PID overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip



# Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

## SERIES SD <sup>1</sup>/<sub>16</sub> DIN Panel Mount Controller with DeviceNet™ on CAN Communications Interface

Panel Mount DeviceNet™ Controllers

		To order, complete the code number to the right with the information below:		S D 6 - A - D	
Price:	\$209.50	<b>SERIES SD = DIN panel mount controller with DeviceNet™</b>			
		<b>Control Type</b>	_____		
NC		C = Control			
NC		L = Limit			
		<b>Power Supply</b>	_____		
NC		H = 100 to 240V $\approx$ (ac/dc)			
30.00		L = 24 to 28V $\approx$ (ac/dc)			
		<b>Output One</b>	_____		
NC		C = Switched dc			
25.00		K = SSR Form A, 0.5A			
30.00		J* = Mechanical relay, Form A, 2A			
40.00		F = Universal process			
		<b>Output Two</b>	_____		
NC		A = None			
25.00		C = Switched dc			
25.00		K = SSR Form A, 0.5A			
30.00		J = Mechanical relay, Form A, 2A			
		<b>DeviceNet™ Communications</b>	_____		
90.00		N = DeviceNet™ on CAN (Packaging and General markets)			
125.00		S = SEMI-SIG-ODVA compliant (Semi-conductor markets)			
		<b>Display Colors and Custom Options</b>	_____		
NC		RG = Red Green (with Watlow name and SD logo)			
NC		RR = Red Red (with Watlow name and SD logo)			
NC		AA = Red Green (SD logo only)			
NC		AC = Red Red (SD logo only)			
10.00		XX = Custom overlay			
75.00		YY = Custom firmware			
10.00		ZZ = Custom parameters			

\* The only option available for the limit controller is a mechanical relay for Output 1.

## Temperature, Limit or Process Controllers

F.O.B.: Winona, Minnesota

### SERIES SD 1/16 DIN Panel Mount Controller with DeviceNet™ on CAN Communications Interface

Panel Mount  
DeviceNet™  
Controllers

**Availability:**

One to three working days for standard configurations of 20 units or less. For orders greater than 20 units, or for non-standard configurations, please contact customer service for delivery schedules.

### Miscellaneous Charges

**1.\*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

### Accessories

Price	Part No.	Description
\$ 25.00	0822-0586-P002	DIN-Rail mounting bracket
6.00	Z100-0723-0000	Mounting bracket with screws
2.00	0822-0549-0001	Retention collar
6.00	0830-0466-0000	Case gasket
10.00	0836-1222-0004	Four position wiring connector
10.00	0836-1222-0006	Six position wiring connector
10.00	0836-1224-0004	Four position sensor wiring connector
10.00	0836-1224-0007	Seven position sensor wiring connector
10.00	0836-1298-0005	Five position DeviceNet™ Mating connector
6.00	0804-0147-0000	Quencharc® RC suppressor
15.00	0600-0041-0016	English DeviceNet™ user manual
20.00	0238-1081-0012	SD6C DeviceNet™ PID overlay with Watlow name and logo
20.00	0238-1081-0013	SD6C DeviceNet™ PID overlay, SD logo only
20.00	0238-1081-0014	SD6L DeviceNet™ Limit overlay with Watlow name and logo
20.00	0238-1081-0015	SD6L DeviceNet™ Limit overlay, SD logo only
20.00	0238-1081-0016	SD6R DeviceNet™ ramping overlay with Watlow name and logo
20.00	0238-1081-0017	SD6R DeviceNet™ ramping overlay, SD logo only
2.00	0822-0679-0000	Connector retainer clip

# Power Controllers

F.O.B.: Winona, Minnesota

## SERIES CZR

### Solid State Power Contactor

**To order, complete the code number to the right with the information below:**

**Price:**

\$70.00	<b>SERIES CZR</b> = Zero cross fired solid state contactor, single phase only	<b>C</b>	<b>Z</b>	-	<b>A</b>	-	<b>V</b>	-	<b>0</b>
	<b>Control Mode</b>								
NC	Z = Zero Cross								
	<b>Output Amperage</b>								
NC	18 = 18 amp								
20.00	24 = 24 amp								
25.00	34 = 34 amp								
50.00	42 = 42 amp								
65.00	50 = 50 amp								
	<b>Output Voltage</b>								
NC	24 = 24 to 280V~(ac)								
5.00	48 = 48 to 530V~(ac)								
10.00	60 = 48 to 660V~(ac)								
	<b>Input Type (Contactor)</b>								
NC	DC1 = 4 to 32V=(dc)								
5.00	AC1 = 90 to 140V~(ac)								
5.00	AC2 = 18 to 36 V~(ac)								

### Recommended Semiconductor Fuses at Base Rating

CZR Model	Fuse Code Number	Price Per Fuse	Fuse Holder Code Number	Fuse Holder Price
18 Amp	17-8025	\$ 11.00	17-5110	\$ 13.00
24 Amp	17-8030	23.00	17-5114	31.00
34 Amp	17-8040	23.00	17-5114	31.00
42 Amp	17-8063	26.00	17-5122	55.00
50 Amp	17-8063	26.00	17-5122	55.00

# Power Controllers

F.O.B.: Winona, Minnesota

## SERIES CZR

### Stock List

#### Solid State Power Contactor

List Price	Part Number	Output Current	Output Voltage Range	Input Voltage Range	Firing Mode
\$ 75.00	CZ18-A24V-AC10	18 amps	24 - 280V~(ac)	90 - 140V~(ac)	Zero Cross
80.00	CZ18-A48V-AC10	18 amps	48 - 530V~(ac)	90 - 140V~(ac)	Zero Cross
70.00	CZ18-A24V-DC10	18 amps	24 - 280V~(ac)	4 - 32V=(dc)	Zero Cross
75.00	CZ18-A48V-DC10	18 amps	48 - 530V~(ac)	4 - 32V=(dc)	Zero Cross
95.00	CZ24-A24V-AC10	24 amps	24 - 280V~(ac)	90 - 140V~(ac)	Zero Cross
100.00	CZ24-A48V-AC10	24 amps	48 - 530V~(ac)	90 - 140V~(ac)	Zero Cross
90.00	CZ24-A24V-DC10	24 amps	24 - 280V~(ac)	4 - 32V=(dc)	Zero Cross
95.00	CZ24-A48V-DC10	24 amps	48 - 530V~(ac)	4 - 32V=(dc)	Zero Cross
100.00	CZ34-A24V-AC10	34 amps	24 - 280V~(ac)	90 - 140V~(ac)	Zero Cross
105.00	CZ34-A48V-AC10	34 amps	48 - 530V~(ac)	90 - 140V~(ac)	Zero Cross
95.00	CZ34-A24V-DC10	34 amps	24 - 280V~(ac)	4 - 32V=(dc)	Zero Cross
100.00	CZ34-A48V-DC10	34 amps	48 - 530V~(ac)	4 - 32V=(dc)	Zero Cross
130.00	CZ42-A48V-AC10	42 amps	48 - 530V~(ac)	90 - 140V~(ac)	Zero Cross
125.00	CZ42-A48V-DC10	42 amps	48 - 530V~(ac)	4 - 32V=(dc)	Zero Cross

**\*Note:** Output current rated at 50°C (122°F) ambient temperature.

#### Availability

Same day shipment on orders of 5 units or less on stock items. Up to six weeks for orders greater than 5 units or non-stock part numbers.

**Non-stock:** Six weeks

## Miscellaneous Charges

### 1. \*Restocking Charge:

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\*Prior approval and an RMA number are required when you return a product for credit.

# Power Controllers

F.O.B.: Winona, Minnesota

## DIN-A-MITE® Style A

All combinations available in three days or less up to 15 units. For orders greater than 15 units, or for non standard configurations, please contact customer service for delivery schedules.

To order, complete the code number to the right with the information below:

<b>Price:</b>	DIN-A-MITE package style A. Zero cross solid state power controller. 1 phase. Natural convection cooling only.	D	A	1	0	-			-	0	
	<b>Phase</b>	_____									
\$98.00	1 = 1 phase, 1 controlled leg										
	<b>Cooling and Current Rating</b>	_____									
NC	0 = Natural convection current rating 18A @ 50°C (122°F)										
	<b>Line and Load Voltage</b>	_____									
NC	02 = 24 to 48V~(ac)										
NC	24 = 100 to 240V~(ac)										
6.00	60 = 277 to 600V~(ac)										
	<b>Input Type</b>	_____									
NC	C0 = 4.5 to 32V=(dc) contactor										
20.00	F0 = 4 to 20mA=(dc) proportional										
NC	K1 = 22 to 26V~(ac) contactor										
15.00	K2 = 100 to 120V~(ac) contactor										
17.00	K3 = 200 to 240V~(ac) contactor										
	<b>User Manual Language</b>	_____									
NC	0 = English										
NC	1 = German										
NC	2 = Spanish										
NC	3 = French										
	<b>Custom Parts Designation</b>	_____									
NC	00 = Standard parts										

**Restocking Charge:**  
A 20 percent of net price restocking charge applies for all returned stock controllers and accessories in like new condition and within 120 days after shipment. Non-stock and modified stock items are not returnable.

Prior approval and an RMA number are required when you return a product for credit.

**Weight**  
0.7 lb or 0.32 kg

**Note:** Semiconductor fuses are not supplied at the above price.

**Recommended DIN Rail Mount Semiconductor Fuse and Fuse Holder part numbers for the DIN-A-MITE A.**

P/N	Description	Price
17-8025	25 Amp Fuse	\$11.00
17-5110	Fuse Holder	13.00

CE approved product. Must use filter listed on page 81 for conducted emissions.

# Power Controllers

F.O.B.: Winona, Minnesota

## DIN-A-MITE Style B

All combinations available in three days or less up to 15 units. For orders greater than 15 units, or for non standard configurations, please contact customer service for delivery schedules.

### Current Rating Table

Model	Current at 50°C (122°F)
DB10	35A
DB20, DB80	25A
DB30, DB90	17A

### Restocking Charge:

A 20 percent of net price restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment. Non-standard and modified standard items are not returnable.

Prior approval and an RMA number are required when you return a product for credit.

**Replacement CT part number:**  
16-0246 - \$60.00 list each

### Fusing

**Note:** Allow one fuse and one holder per leg fused. Example, a 3-phase, 2 leg DIN-A-MITE requires two fuses and two holders.

### Weight

1.4 lb or 0.64 kg

**CE approved product. Must use filter listed on page 81 for conducted emissions.**

To order, complete the code number to the right with the information below:

### Price:

DIN-A-MITE package style B.  
Zero cross solid state power controller.  
1 and 3 phase. Natural convection cooling only

\$133.00  
160.00  
197.00  
182.00  
221.00

### Phase

1 = 1 phase, 1 controlled leg  
2 = 3 phase, 2 controlled legs  
3 = 3 phase, 3 controlled legs  
8 = 2 independent zones (Input control C or K)  
9 = 3 independent zones (Input control C or K)

### Cooling and Current Rating Per Pole

NC 0 = Natural convection standard DIN-Rail or panel mount heat sink  
(See current rating table at left)

### Line and Load Voltage

NC 02 = 24 to 48V~(ac)  
NC 24 = 120 to 240V~(ac)  
6.00/per leg 60 = 277 to 600V~(ac)

### Input Control Signal

NC C0 = 4.5 to 32V=(dc) contactor  
20.00 F0 = 4 to 20mA=(dc) proportional  
NC K1 = 22 to 26V~(ac) contactor  
15.00 K2 = 100 to 120V~(ac) contactor  
17.00 K3 = 200 to 240V~(ac) contactor

### Alarm

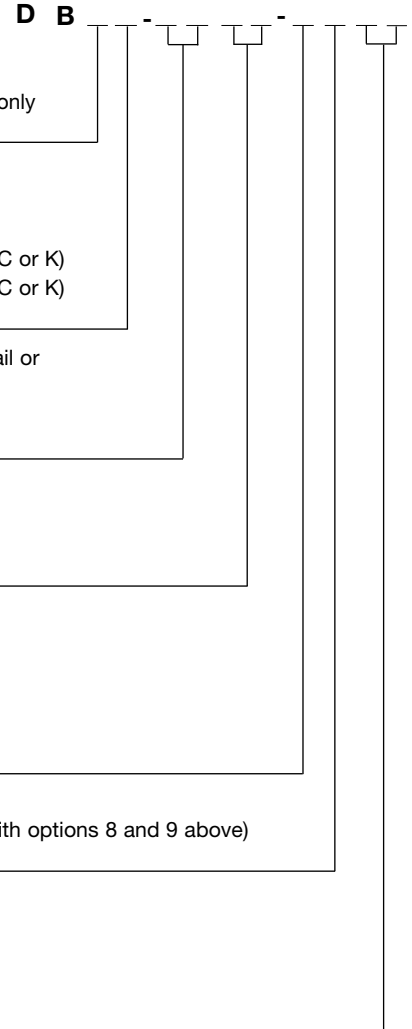
NC 0 = No alarm  
50.00 S = Shorted SCR alarm (not available with options 8 and 9 above)

### User Manual Language

NC 0 = English  
NC 1 = German  
NC 2 = Spanish  
NC 3 = French

### Custom Part Numbers

NC 00 = Standard part  
NC XX = Any letter or number, custom options, labeling, etc.



### Recommended DIN Rail Mount Semiconductor Fuse and Fuse Holder for the DIN-A-MITE B

**Note:** Semiconductor fuses are not supplied at the above price.

**Note:** For safe operation fuses must be rated at 125 percent of load current. Example: 30A~(ac) load: 1.25 x 30 = 37.5, then select the next closest fuse size above 37.5, (40 amp fuse).

Fuse Amperage Rating	Fuse Code No.	Price Per Fuse	Holder Code No.	Price Per Holder
20 amp	17-8020	\$11.00	17-5110	\$13.00
25 amp	17-8025	11.00	17-5110	13.00
32 amp	17-8030	23.00	17-5114	31.00
40 amp	17-8040	23.00	17-5114	31.00
50 amp	17-8050	23.00	17-5114	31.00

# Power Controllers

F.O.B.: Winona, Minnesota

## DIN-A-MITE Style C

All combinations available in three days or less up to 15 units. For orders greater than 15 units, or for non standard configurations, please contact customer service for delivery schedules.

### Current Rating Table

Model	Current at 50°C (122°F)
DC10	55A
DC1T	60A
DC11, DC12, DC13	75A
DC20, DC80	40A
DC2T, DC8T	45A
DC21, DC22, DC23, DC81, DC82, DC83	65A
DC30, DC90	30A
DC3T, DC9T	35A
DC31, DC32, DC33, DC91, DC92, DC93	55A

### Fusing

**Note:** Allow one fuse and one holder per leg fused. Example, a 3-phase, 2 leg DIN-A-MITE requires two fuses and two holders.

### Weight

3.2 lb or 1.47 kg without fan  
4.0 lb or 1.83 kg with fan

### Replacement CT part number:

16-0246 - \$60.00 list each

To order, complete the code number to the right with the information below:

**Price:** DIN-A-MITE Package Style C

Zero cross solid state power controller in natural and forced air cooled versions.

- Phase** \_\_\_\_\_
- \$200.00 1 = 1 phase, 1 controlled leg
  - 260.00 2 = 3 phase, 2 controlled legs
  - 324.00 3 = 3 phase, 3 controlled legs, (use with four wire wye)
  - 283.00 8 = 2 independent zones (Input Type C, K)
  - 350.00 9 = 3 independent zones (Input Type C, K)

**Cooling and Current Rating Per Leg (See table on left)** \_\_\_\_\_

- NC 0 = Natural convection standard DIN-Rail or panel heat sink
- 55.00 1 = Fan cooled 120V~(ac) standard DIN-Rail or panel heat sink
- 55.00 2 = Fan cooled 240V~(ac) standard DIN-Rail or panel heat sink
- 55.00 3 = Fan cooled 24V=(dc) standard DIN-Rail or panel heat sink
- 55.00 T = Natural convection through wall or cabinet heat sink (NEMA 4X)

**Line and Load Voltage** \_\_\_\_\_

- NC 02 = 24 to 48V~(ac) (Control C, F, K)
- NC 24 = 100 to 240V~(ac) (Control C, F, K)
- NC 60 = 277 to 600V~(ac) (Control C, F, K)

**Input Control Signal** \_\_\_\_\_

- NC C0 = 4.5 to 32V=(dc) contactor
- 20.00 F0 = 4 to 20mA=(dc) proportional
- NC K1 = 22 to 26V~(ac) contactor
- 15.00 K2 = 100 to 120V~(ac) contactor
- 17.00 K3 = 200 to 240V~(ac) contactor

**Alarm** \_\_\_\_\_

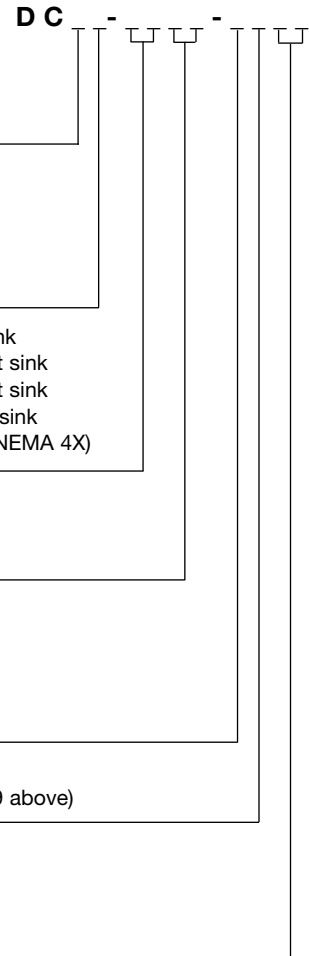
- NC 0 = No alarm
- 50.00 S = Shorted SCR alarm (not available with options 8 and 9 above)

**User Manual Language** \_\_\_\_\_

- NC 0 = English
- NC 1 = German
- NC 2 = Spanish
- NC 3 = French

**Custom Part Numbers** \_\_\_\_\_

- NC 00 = Standard part
- NC XX = Any letter or number, custom options, labeling, etc.



### Recommended DIN Rail Mount Semiconductor Fuse and Fuse Holder for the DIN-A-MITE C

**Note:** Semiconductor fuses are not supplied at the above price.

**Note:** Allow one fuse and one holder per leg fused. Example, a 3-phase, 2 leg DIN-A-MITE requires two fuses and two holders.

**Note:** For safe operation fuses must be rated at 125 percent of load current. Example: 50A~(ac) load: 1.25 x 50 = 62.5, then select the next closest fuse size above 62.5, (63 amp fuse).

Fuse Amperage Rating	Fuse Code No.	Price Per Fuse	Holder Code No.	Price Per Holder
40 amp	17-8040	\$23.00	17-5114	\$31.00
50 amp	17-8050	23.00	17-5114	31.00
63 amp	17-8063	26.00	17-5122	55.00
80 amp	17-8080	26.00	17-5122	55.00
100 amp	17-8100	26.00	17-5122	55.00

CE approved product. Must use filter listed on page 81 for conducted emissions.

# Power Controllers

F.O.B.: Winona, Minnesota

## DIN-A-MITE Style C Enhancements

All combinations available in three days or less up to 5 units. For orders greater than 5 units, or for non standard configurations, please contact customer service for delivery schedules.

### Current Rating Table

Model	Current at 50°C (122°F)
DC10	55A
DC1T	60A
DC11, DC12, DC13	75A
DC20	40A
DC2T	45A
DC21, DC22, DC23,	65A
DC30	30A
DC3T	35A
DC31, DC32, DC33	55A

### Restocking Charge:

A 20 percent of net price restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment. Non-standard and modified standard items are not returnable.

Prior approval and an RMA number are required when you return a product for credit.

Remote Setpot  
08-5362 - \$65.00

**Replacement CT part number:** 16-0246 - \$60.00 list each

To order, complete the code number to the right with the information below:

Price: DIN-A-MITE Package Style C

Solid state power controller in natural and forced air cooled versions.

### Phase

- \$200.00 1 = 1 phase, 1 controlled leg
- 260.00 2 = 3 phase, 2 controlled legs
- 324.00 3 = 3 phase, 3 controlled legs, (use with four wire wye)

### Cooling and Current Rating Per Leg (See table on left)

- NC 0 = Natural convection standard DIN-Rail or panel heat sink
- 55.00 1 = Fan cooled 120V~(ac) standard DIN-Rail or panel heat sink
- 55.00 2 = Fan cooled 240V~(ac) standard DIN-Rail or panel heat sink
- 55.00 3 = Fan cooled 24V=(dc) standard DIN-Rail or panel heat sink
- 55.00 T = Natural convection through wall or cabinet heat sink (NEMA 4X)

### Line and Load Voltage

- NC 12 = 100 to 120V~(ac) (Control L, P, S)
- NC 20 = 200 to 208V~(ac) (Control L, P, S)
- NC 24 = 230 to 240V~(ac) (Control L, P, S)
- NC 27 = 277V~(ac) (Control L, P, S)
- NC 40 = 400V~(ac) (Control L, P, S)
- NC 48 = 480V~(ac) (Control L, P, S)
- NC 60 = 600V~(ac) (Control L, P, S)

### Input Control Signal

- 220.00 L (0 to 5) = Phase angle with current limiting<sup>①</sup> (DC1 only, Alarm 0 only, includes one current transformer - Single phase only)
- 135.00 P (0 to 5) = Phase angle<sup>①</sup> (DC1 only, Alarm 0 only - Single phase only)
- 135.00 S (0 to 5) = Single cycle variable time base  
(Select one of the following input options for L, P, S (0 to 5))
  - 0 = 4 to 20mA
  - 1 = 12 to 20mA (for input control signal option S only)
  - 2 = 0 to 20mA
  - 3 = 0 to 5V=(dc) proportional (also for potentiometer input)
  - 4 = 1 to 5V=(dc) proportional
  - 5 = 0 to 10V=(dc) proportional

### Alarm

- NC 0 = No alarm
- 50.00 S = Shorted SCR alarm (for zero cross models only)
- H = Open-heater and shorted-SCR alarm (for input control signal options S only)
- 75.00 = 1 phase, 1 controlled leg
- 123.00 = 3 phase, 2 controlled legs
- 171.00 = 3 phase, 3 controlled legs

### User Manual Language

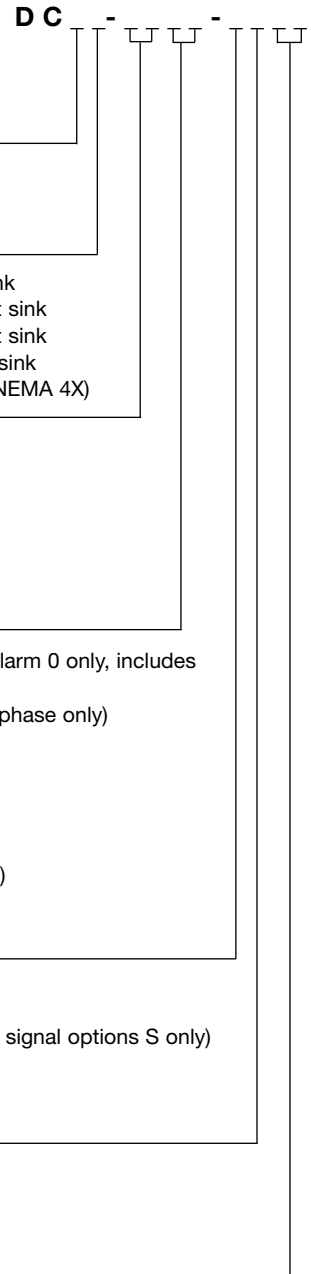
- NC 0 = English
- NC 1 = German
- NC 2 = Spanish
- NC 3 = French

### Custom Part Numbers

- NC 00 = Standard part
- NC 10 = 1-second soft start (Control option P, L)
- NC XX = Any letter or number, custom options, labeling, etc.

<sup>①</sup> Not CE approved

**CE approved product. Must use filter listed on page 81 for conducted emission. Phase angle outputs are not CE approved.**





# Power Controllers

F.O.B.: Winona, Minnesota

## DIN-A-MITE Style D

All combinations available in three days or less up to 5 units. For orders greater than 5 units, or for non standard configurations, please contact customer service for delivery schedules.

To order, complete the code number to the right with the information below:

		<b>D D 1</b>	
<b>Price:</b>	DIN-A-MITE package style D. Zero cross solid state power controller up to 100 Amps single phase. Includes on board semiconductor fuses.		
\$370.00	<b>Phase</b>	1	
	1 = 1-phase, 1 controlled pole		
	<b>Cooling and Current Rating</b>		
NC	0 = Natural convection; current rating 80A @ 50°C (122°F)		
	<b>Line and Load Voltage</b>		
NC	02 = 24 to 48V~(ac)		
NC	24 = 100 to 240V~(ac)		
10.00	48 = 277 to 480V~(ac)		
10.00	60 = 277 to 600V~(ac)		
	<b>Input Control Signal</b>		
NC	C0 = 4.5 to 32V=(dc) contactor		
20.00	F0 = 4 to 20mA=(dc) proportional		
NC	K1 = 22 to 26V~(ac) contactor		
15.00	K2 = 100 to 120V~(ac) contactor		
17.00	K3 = 200 to 240V~(ac) contactor		
	<b>Open Heater/Shorted SCR or Alarm Option</b>		
NC	0 = No alarm		
30.00	1 = Load current transformer		
50.00	S = Shorted SCR alarm		
	<b>User Manual Language</b>		
NC	0 = English		
NC	1 = German		
NC	2 = Spanish		
NC	3 = French		
	<b>Custom Options</b>		
NC	00 = Standard		

**Weight**  
6.5 lb or 2.95 kg.

**Restocking Charge:**  
A 20 percent of net price restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment. Non-standard and modified standard items are not returnable.

Prior approval and an RMA number are required when you return a product for credit.

**Replacement semiconductor fuse:**

<b>Price</b>	<b>Watlow P/N</b>	<b>Bussman P/N</b>
\$37.00	0808-0096-0000	170N3437

**Note:** No holder required.  
Requires 2 fuses per DIN-A-MITE D.

**Replacement CT part number:**  
16-0246 - \$60.00 list each

**CE approved product. Must use filter listed on page 81 for conducted emissions.**

# Power Controllers

F.O.B.: Winona, Minnesota

## E-SAFE® II Hybrid Power Switch

To order, complete the code number  
to the right with the information below:

Price: E-SAFE® Hybrid Power Switch

- Number of Poles \_\_\_\_\_
- \$ 39.00 1 = 1 pole
  - 69.00 2 = 2 poles controlled
  - 99.00 3 = 3 poles controlled

- Load Voltage \_\_\_\_\_
- 1 = 100 to 120V~(ac)
  - 2 = 200 to 240V~(ac)
  - 3 = 230/277V~(ac) 400/480V~(ac) with wye/star,  
neutral connected to center required]

- Command Signal Voltage \_\_\_\_\_
- LV = Low voltage 3 to 24V=(dc) or 24V~(ac)
  - HV = High voltage 100 to 277V~(ac) +10/-15 percent

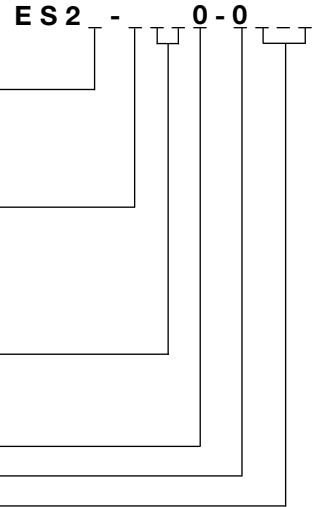
Future Option \_\_\_\_\_

Future Option \_\_\_\_\_

Custom Parameters \_\_\_\_\_

000 = Standard product

Any three letters or numbers = cosmetic options



# Power Controllers

F.O.B.: Winona, Minnesota

## POWER SERIES

### Solid State Power Controller

To order, complete the code number to the right with the information below:

#### Important Notes:

##### Phase Angle:

Phase angle and phase angle with current limit are available on single-phase, and 3-phase/3 leg models only. To get current limiting, you must also order heater diagnostics.

##### Heater Bakeout:

Heater bakeout is available on single-phase, and 3-phase/3 leg models with heater diagnostics.

Price:

**POWER SERIES** = Microprocessor-Based Solid State Power Controller

NC

#### Package Style

C = 65 to 250 Amps

NC

#### Phase

- 1 = 1 phase
- 2 = 3 phase, 2-leg control (4 SCRs)
- 3 = 3 phase, 3 leg control (6 SCRs)
- 4 = 3 phase, 4-wire wye connected load
- 8 = 2 single phase zones
- 9 = 3 single phase zones

NC  
NC  
NC

#### Heater Diagnostics

- 0 = None
- 1 = Heater Diagnostics (See important notes to left)

\$80.00/leg

#### Output Performance Package

(See Amperage/Price chart below; insert code number here and add code price to selected optional feature list price.)

#### Output Voltage

- A = 24 to 120V~(ac)
- B = 200 to 480V~(ac)
- C = 600V~(ac)

NC  
NC  
NC

#### Communications

- 0 = None
- 1 = EIA/TIA 232/485 Modbus® communications, opto-isolated (field selectable)

\$120.00

#### Feedback/Retransmit

- 0 = None
- 1 = Load current feedback (0-10V or 0-20mA retransmit output) (Must have Heater Diagnostics selected.)

NC  
\$100.00

#### Custom

- 00 = None
- AA = No Watlow logo, with agency approval marks.
- XX = Custom, consult factory for options

NC  
NC

CE approved product. Must use filter listed on page 81 for conducted emissions. Phase angle outputs are not CE approved for conducted emissions.

### Amperage Chart

(Base list price for selected amperage.)

Package Style C @ 50°C (122°F)

Inside enclosure ambient temperature

	Single-Phase			3-Phase, 2 Leg and 2 Single-Phase Zones			3-Phase, 3 Leg, 3 Single-Phase Zones and 4-Wire Model		
	List Price	Code No.	Amp	List Price	Code No.	Amp	List Price	Code No.	Amp
<b>Non</b>	\$1,349.00	N20	100A	\$1,575.00	N20	80A	\$1,799.00	N20	65A
<b>Fan</b>	1,406.00	N25	140A	1,744.00	N25	105A	2,081.00	N25	85A
<b>Cooled</b>	1,463.00	N30	165A	1,799.00	N30	120A	2,137.00	N30	105A
<b>Fan</b>	1,434.00	F20	125A	1,659.00	F20	120A	1,884.00	F20	90A
<b>Cooled</b>	1,490.00	F25	200A	1,828.00	F25	160A	2,165.00	F25	140A
	1,547.00	F30	250A	1,884.00	F30	185A	2,222.00	F30	155A

# Power Controllers

F.O.B.: Winona, Minnesota

## POWER SERIES

Solid State Power Controller

Stock List

### Availability

All combinations available in 10 working days or less up to 5 units. For orders greater than 5 units, or for non standard configurations, please contact customer service for delivery schedules.

Weight: 23 lbs.

### Miscellaneous Charges

**1. \*Restocking Charge:**

A 20 percent of net price minimum restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

**Non-standard and modified standard items are not returnable.**

\* Prior approval and an RMA number are required when you return a product for credit.

**2. Custom Setup Parameters:**

- \$500 one-time charge to fully document custom setup parameters.
- **Custom parameters \$10 list price adder.**

**3. Artwork/Private Label Charge:**

- \$700 net one-time charge for custom front panels in 2 colors, black and white only.
- Other colors available with \$250 net setup charge per order, consult factory.
- \$250 net setup charge applies to orders of less than 10 pieces
- **Custom printing \$10 list price adder.**

### Accessories

**Replacement Fuses**

List Price	Watlow Code No.	Description	Ferraz Part No.	Bussmann Part No.
\$ 35.00	<b>0808-0102-0100</b>	100 amp @ 600V~(ac)	L330037	170M1317
35.00	<b>0808-0102-0125</b>	125 amp @ 600V~(ac)	M330038	170M1318
35.00	<b>0808-0102-0160</b>	160 amp @ 600V~(ac)	N330039	170M1319
40.00	<b>0808-0102-0200</b>	200 amp @ 600V~(ac)	P330040	170M1320
40.00	<b>0808-0102-0250</b>	250 amp @ 600V~(ac)	Q330041	170M1321
40.00	<b>0808-0102-0315</b>	315 amp @ 600V~(ac)	R330042	170M1322

Single Phase		3-Phase, 2 leg and 2 Single-Phase Zones		3-Phase, 3 leg and 3 Single-Phase Zones	
Output Rating	Fuse P/N	Output Rating	Fuse P/N	Output Rating	Fuse P/N
N20	<b>0808-0102-0160</b>	N20	<b>0808-0102-0125</b>	N20	<b>0808-0102-0100</b>
N25	<b>0808-0102-0200</b>	N25	<b>0808-0102-0160</b>	N25	<b>0808-0102-0125</b>
N30	<b>0808-0102-0250</b>	N30	<b>0808-0102-0160</b>	N30	<b>0808-0102-0160</b>
F20	<b>0808-0102-0160</b>	F20	<b>0808-0102-0160</b>	F20	<b>0808-0102-0125</b>
F25	<b>0808-0102-0250</b>	F25	<b>0808-0102-0250</b>	F25	<b>0808-0102-0200</b>
F30	<b>0808-0102-0315</b>	F30	<b>0808-0102-0250</b>	F30	<b>0808-0102-0200</b>

# Power Controllers

F.O.B.: Winona, Minnesota

## QPAC

To order, complete the code number to the right with the information below and on the next page:

**Price:**  
See prices next page.

**Note: Q32 and Q33 models are 50/60Hz line frequency dependent. Specify application line frequency when ordering.**

**Series QPAC** = Modular solid state power controller; phase angle or zero cross; fuse(s) and holder(s) included.

**Phase**  
01 = 1-phase  
32 = 3-phase, 2 leg  
33 = 3-phase, 3 leg, 3 wire

**Operating and Output Voltage**  
12 = 120V~(ac)      38 = 380V~(ac)  
20 = 208V~(ac)      41 = 415V~(ac)  
24 = 240V~(ac)      48 = 480V~(ac)  
27 = 277V~(ac)      57 = 575V~(ac)

**Cooling Fan Voltage**  
Customer to supply wiring and hook-up  
1 = 120V~(ac)  
2 = 240V~(ac)

**Output Current Amps (See next page for Amperage/Price Chart)**  
150 = 150 amps      500 = 500 amps  
200 = 200 amps      600 = 600 amps  
300 = 300 amps      800 = 800 amps  
400 = 400 amps      01K = 1000 amps

**Input Control Card**  
\$125.00 CA = Zero crossed contactor ~ (ac) input (08-5285)  
115.00 CD = Zero crossed contactor = (dc) input (08-5286)  
160.00 BF = Zero crossed, fixed time base (08-5289)  
Calibrated for 4-20mA=(dc) input unless specified by customer.  
150.00 BV = Zero crossed, variable time base (RPC-5342)  
Calibrated for 4-20mA=(dc) input unless specified by customer.  
160.00 AF = Phase angle fired (08-5288) Calibrated for 4-20mA=(dc) input unless specified by customer. **Not available with Q32 models.**  
300.00 \*AL = Phase angle fired with current limit (RPC5411) includes one current transformer (CT) and one interstage transformer for 1-phase.  
**Add \$58.00 for second CT required for 3 phase.**  
Calibrated for 4-20mA=(dc) input unless specified by customer.  
**Not available with Q32 models.**

**\*Open Heater/Shorted SCR Detector (RPC5405)**  
The open heater/shorted SCR detector is for zero cross options only.  
NC 0 = None  
245.00 1 = 1-phase operation (includes one CT and interstage transformer)  
310.00 2 = 3-phase operation (includes two CT's and interstage transformer)

See page 77 for additional transformers.

**Note:** QPAC is UL® and C-UL® 508 listed for the following models:  
• Q01, Q32, Q33-XXX-XXX-XXX up to 300 Amperes and 575VAC.  
• Q01, Q32-XXX-XXX-XXX up to 1,000 Amperes and 480VAC.

Short Circuit Current Rating (SCCR) rated to 200KA on models Q(01,32)-X(24,48)-XXX-XXX and Q33-X(24,48)-(150-300)-XXX.

This product is not CE approved.

# Power Controllers

F.O.B.: Winona, Minnesota

## QPAC

### Availability

All combinations up to 5 units are available in four days or less up to 300 amps. Above 300 amps and for orders greater than 5 units please contact customer service for delivery schedules.

### QPAC Amperage/Price Chart

Amps	Q01		Q32		Q33	
	Up to 480V	575V	Up to 480V	575V	Up to 480V	575V
150	\$1,526.00	\$1,679.00	\$2,346.00	\$2,580.00	\$ 3,376.00	\$ 3,714.00
200	1,679.00	1,851.00	2,654.00	2,919.00	3,578.00	4,154.00
300	1,798.00	1,978.00	3,110.00	3,422.00	4,243.00	4,667.00
400	2,692.00	2,948.00	4,573.00	5,030.00	7,103.00	7,931.00
500	2,746.00	3,017.00	4,720.00	5,191.00	7,341.00	8,073.00
600	2,840.00	3,125.00	4,868.00	5,354.00	7,543.00	8,297.00
800	3,689.00	4,057.00	6,489.00	7,140.00	9,875.00	10,864.00
1,000	4,868.00	5,354.00	8,849.00	9,732.00	13,521.00	14,873.00

### QPAC Weight Chart

Amps	Q01	Q32	Q33
150	15 lb or 6.8 kg	36 lb or 16.3 kg	50 lb or 22.7 kg
200	15 lb or 6.8 kg	36 lb or 16.3 kg	50 lb or 22.7 kg
300	15 lb or 6.8 kg	36 lb or 16.3 kg	50 lb or 22.7 kg
400	44 lb or 20 kg	85 lb or 39 kg	100 lb or 45 kg
500	44 lb or 20 kg	85 lb or 39 kg	100 lb or 45 kg
600	44 lb or 20 kg	85 lb or 39 kg	100 lb or 45 kg
800	49 lb or 22 kg	120 lb or 54 kg	135 lb or 61 kg
1,000	49 lb or 22 kg	120 lb or 54 kg	135 lb or 61 kg

### Accessories

**Note:**

• **Restocking Charge:**

A 20 percent of net price restocking charge applies for all returned standard controllers and accessories in like new condition and within 120 days after shipment.

Non-standard and modified standard items are not returnable.

Prior approval and an RMA number are required when returning a product for credit.

- Semiconductor fuses protect only the SCR.
- UL® nor NEC accept semiconductor fuses for cable protection.

Price	Part No.	Description
\$ 65.00	16-0008	150A: 5A Current transformer
65.00	16-0045	200A: 5A Current transformer
65.00	16-0073	300A: 5A Current transformer
65.00	0004-0286-0400	400A: 5A Current transformer
65.00	0004-0286-0500	500A: 5A Current transformer
65.00	0004-0286-0600	600A: 5A Current transformer
65.00	0004-0287-0800	800A: 5A Current transformer
65.00	0004-0288-1000	1000A: 5A Current transformer
65.00	16-0176	5A: 20mA Interstage transformer
65.00	08-5362	Manual Control Kit

\*Note: Use two wire passes through current transformer #16-0008 for 75 amp applications. With a current transformer rated 75 amps~(ac) or above, a 16-0176 interstage transformer is required. Red leads are secondary, black leads are primary.

# Power Controllers

F.O.B.: Winona, Minnesota

## Solid State Relay

**Availability Stock:** Same Day Shipment.  
Frequency Range = 47-63Hz  
Approximate Net Weight = 0.21 lbs. or  
0.09 kg

**Note:** 600 Volt output Solid State Relays  
are non-stock. Call the factory for the  
present delivery schedule.

Order by selecting the code number  
from the specifications table below.

**Note:** Each solid state  
relay includes one thermal  
foil, 2- #8-32 screws and  
two belville washers for  
mounting the solid state  
relay.

Note: See semiconductor  
fusing and holder part  
number information on  
page 81.

Price	Code Number	Output Current (Amps)	Nominal Output Voltage	Input Control Voltage	Output Voltage Range
\$ 31.00	SSR-240-10A-DC1	10	120/ 240V~(ac)	3-32V=(dc) Zero Cross	24-280V~(ac)
37.00	SSR-240-25A-DC1	25	120/ 240V~(ac)	3-32V=(dc) Zero Cross	24-280V~(ac)
51.00	SSR-240-40A-DC1	40	120/ 240V~(ac)	3-32V=(dc) Zero Cross	24-280V~(ac)
53.00	SSR-240-50A-DC1	50	120/ 240V~(ac)	3-32V=(dc) Zero Cross	24-280V~(ac)
89.00	SSR-240-75A-DC1	75	120/ 240V~(ac)	3-32V=(dc) Zero Cross	24-280V~(ac)
36.00	SSR-240-10A-AC1	10	120/ 240V~(ac)	90-280V~(ac) Zero Cross	24-280V~(ac)
42.00	SSR-240-25A-AC1	25	120/ 240V~(ac)	90-280V~(ac) Zero Cross	24-280V~(ac)
56.00	SSR-240-40A-AC1	40	120/ 240V~(ac)	90-280V~(ac) Zero Cross	24-280V~(ac)
58.00	SSR-240-50A-AC1	50	120/ 240V~(ac)	90-280V~(ac) Zero Cross	24-280V~(ac)
94.00	SSR-240-75A-AC1	75	120/ 240V~(ac)	90-280V~(ac) Zero Cross	24-280V~(ac)
63.00	SSR-480-25A-DC1	25	480V~(ac)	4-32V=(dc) Zero Cross	48-530V~(ac)
80.00	SSR-480-50A-DC1	50	480V~(ac)	4-32V=(dc) Zero Cross	48-530V~(ac)
97.00	SSR-480-75A-DC1	75	480V~(ac)	4-32V=(dc) Zero Cross	48-530V~(ac)
68.00	SSR-480-25A-AC1	25	480V~(ac)	90-280V~(ac) Zero Cross	48-530V~(ac)

**CONTINUED** 

# Power Controllers

F.O.B.: Winona, Minnesota

## Solid State Relay

Order by selecting the code number from the specifications table below.

**Note:** Each solid state relay includes one thermal foil, 2- #8-32 screws and two belville washers for mounting the solid state relay.

**Note:** See semiconductor fusing and holder part number information on page 81.

**Note:** No VDE agency approval on 600V~(ac) models.

Price	Code Number	Output Current (Amps)	Nominal Output Voltage	Input Control Voltage	Output Voltage Range
85.00	SSR-480-50A-AC1	50	480V~(ac)	90-280V~(ac) Zero Cross	48-530V~(ac)
102.00	SSR-480-75A-AC1	75	480V~(ac)	90-280V~(ac) Zero Cross	48-530V~(ac)
65.00	SSR-600-25A-DC1 Non-stock	25	600V~(ac)	4-32V=(dc) Zero Cross	48-660V~(ac)
82.00	SSR-600-50A-DC1 Non-stock	50	600V~(ac)	4-32V=(dc) Zero Cross	48-660V~(ac)
99.00	SSR-600-75A-DC1 Non-stock	75	600V~(ac)	4-32V=(dc) Zero Cross	48-660V~(ac)
70.00	SSR-600-25A-AC1 Non-stock	25	600V~(ac)	90-280V~(ac) Zero Cross	48-660V~(ac)
87.00	SSR-600-50A-AC1 Non-stock	50	600V~(ac)	90-280V~(ac) Zero Cross	48-660V~(ac)
104.00	SSR-600-75A-AC1 Non-stock	75	600V~(ac)	90-280V~(ac) Zero Cross	48-660V~(ac)
36.00	SSR-240-10A-RND	10	240V~(ac)	4-32V=(dc) Random	24-280V~(ac)
75.00	SSR-480-50A-RND	50	480V~(ac)	4-32V=(dc) Random	48-530V~(ac)
101.00	SSR-480-75A-RND	75	480V~(ac)	4-32V=(dc) Random	48-530V~(ac)
65.00	SSR-100-20A-DC1	20	100V=(dc)	3-32V=(dc)	0-100V=(dc)



# Power Controllers

F.O.B.: Winona, Minnesota

## Solid State Relay

**Availability Stock:** Same day shipment

### Heat Sinks

Price	Part No.	Dimensions	Amp Rating	DIN Rail Mount
\$18.00	Z100-0815-000A	1.8 in. W x 3.7 in. L x 1.9 in. D	18	Yes
25.00	Z100-0815-000B	3.2 in. W x 3.7 in. L x 2.9 in. D	35	Yes
39.00	Z100-0815-000C	3.2 in. W x 5.7 in. L x 3.6 in. D	55	Yes
85.00	Z100-0815-12FC (120V)	3.2 in. W x 7.64 in. L x 3.6 in. D	*75	Yes
85.00	Z100-0815-24FC (240V)	3.2 in. W x 7.64 in. L x 3.6 in. D	*75	Yes

**Note:** Rating is for total load current on the heat sink. Drilled and tapped for one solid state relay.  
\* Fan cooled heat sink

### Accessories/Control Boards for VDC input Solid State Relays

**Note:** The AT and BT cards need to be calibrated. Please enter as an RPC #.

Price	Model	Description	Part No.
\$100.00	*SBL	SSR SERIES, burst firing loop powered card	RPC-5399-42-000
115.00	*SDA	Shorted SSR alarm *For DC input relays only.	RPC-5386-0000
140.00	BT See Note	VPAC SERIES, burst firing, Transformer powered card. 1-phase only. Standard calibration is 4-20mA=(dc). Order transformer separately. See below.	RPC-5406-05-60H (0-5V=(dc) input) RPC-5406-05-50H RPC-5406-42-60H (4-20mA input) RPC-5406-42-50H
140.00	AT See Note	VPAC SERIES, phase angle firing, Transformer powered card. 1-phase only. Use only with random fired SSRs. Standard calibration is 4-20mA=(dc). Order transformer separately. See below.	RPC-5422-05-60H (0-5V=(dc) input)  RPC-5422-42-60H (4-20mA input)
66.00	120V~(ac)	AT and BT card transformer assembly	08-5915
66.00	240V~(ac)		08-5765
80.00	480V~(ac)		08-5766
65.00		Manual Control Kit; 1K pot, dial, knob, leads	08-5362

# Power Controllers

F.O.B.: Winona, Minnesota

## Accessories/ Replacement Parts

### Semiconductor Fusing Guide

1. Semiconductor fuses *are required* for SCR protection.
2. Domestic semiconductor fuses are classified as supplemental protection for semiconductors, and not yet approved for branch circuit or cable protection.
3. All fuses should be rated at 125 percent of connected load (or the next standard fuse size above 125 percent)
4. Due to special cases; cooler ambient, small loads, etc., the connected load should be the determining factor although the semiconductor fuse I<sup>2</sup>t rating must not exceed the SCR I<sup>2</sup>t rating. For example: A DIN-A-MITE style B with a 20 amp connected load could use a 25 amp semiconductor fuse. The following semiconductor fuse charts may be modified following the above guidelines.

### DIN Rail Mount Semiconductor Fuses and Holders for the DIN-A-MITE and SSRs

Fuse Amp Rating	Fuse Voltage Rating	Watlow Fuse Part No.	Watlow Fuse Price	Bussman Equivalent Fuse Part No.	Watlow Holder Part No.	Watlow Holder Price
12 amp	600	17-8012	\$11.00	FWC-12A10F	17-5110	\$13.00
20 amp	600	17-8020	11.00	FWC-20A10F	17-5110	13.00
25 amp	600	17-8025	11.00	FWC-25A10F	17-5110	13.00
32 amp	700	17-8030	23.00	FWP-32A14F	17-5114	31.00
40 amp	700	17-8040	23.00	FWP-40A14F	17-5114	31.00
50 amp	700	17-8050	23.00	FWP-50A14F	17-5114	31.00
63 amp	700	17-8063	26.00	FWP-63A22F	17-5122	55.00
65 amp	660	0808-0096-0000	37.00	170N3437	Note 1	N/A
80 amp	700	17-8080	26.00	FWP-80A22F	17-5122	55.00
100 amp	700	17-8100	26.00	FWP-100A22F	17-5122	55.00

Note1: Replacement fuse for DIN-A-MITE style D

### CE Filters for DIN-A-MITE Products

Line Rating	Price	Part Number	Description	Stocked
275V~ (ac)	\$45.00	14-0019	Single phase, parallel connected filter	Yes
475V~ (ac)	60.00	14-0020	Three phase, parallel connected filter	Yes

Required for CE conducted emission.

Notes: Filter dimensions are 42 mm (1.7 in.) high X 64 mm (2.5 in.) wide X 28 mm (1.1 in.) deep. There is a one year limited warranty on CE filters.

### Miscellaneous Charges

#### 1 Restocking Charge:

20 percent of net price restocking charge applies for all returned **standard** controllers and accessories in new condition and within 120 days after shipment.

Non-standard and modified standard items are not returnable.

Prior approval and an RMA number are required when you return a product for credit.

## Service and Repair Information

F.O.B.: Winona, Minnesota

### Catalog Products

#### Return Material Authorization Procedure—

#### Contact Winona Customer Service Team at 1-800-414-4299

- A detailed return reason for all products being returned is required.
- Clearly display the RMA number for our receiving department to identify.
- If product has a manufacturing defect, Watlow, in its sole discretion, may issue a credit for the returned product or repair or replace with like product.
- A P.O. is required when we receive a request for rush repair. (See “Rush Return Service” below for further instructions.)
- A P.O. is required when product is outside the warranty period. The customer service team will be able to assist in determining if product is within or outside the warranty period.

#### Return Material Policy

##### RMA Disposition

Watlow will contact the customer in all cases to bring RMAs to resolution. If agreement has not been made in 30 days after evaluation, the product will be returned to the customer as received at the customer expense.

#### No Trouble Found Policy (NTF)

Watlow reserves the right to charge a nominal handling fee of \$50.00 per unit returned that is found to have no defects. To avoid this charge, we ask the user/caller to discuss the nature of the failed unit(s) with an Applications Engineer (507-494-5656).

#### Request for RUSH Return Service - Applies to all Watlow Winona Products

1. When Customer Service is notified of a **RUSH** request, the customer will be notified of the **Rush Fee** (see Table below. The **Rush Fee** below is **added** on to the Repair charge(s), if any). Customers will be asked if they have contacted Application Engineering for assistance.
  - **If they have not contacted Application Engineering, they will be referred to Application Engineering.**
  - If customer refuses Application Engineering services, the customer will be made aware of the NTF (No Trouble Found) Policy in the event that nothing is found to be defective with the returned product. A NTF fee could be applicable.
2. Inbound RMAs:
  - RMAs from customers accepting the Rush Fee will be handled as described in the chart below under the Code "Rush"
  - Watlow will transport all controls back to customer via method the product(s) was (were) received in.
3. Rush Fee, and Repair Fee will be waived if units are determined to be covered by the warranty and within the warranty period.
4. Service Charges:

Code	Requirement	Turnaround Time	Fee
Rush	Rush repair must be specified at the time RMA # is taken out.	All efforts will be made to repair and return the units the same day they are received. NTF units may take longer due to analysis time.	<b>\$50.00 per unit</b> Applies to warranty and non-warranty repairs. If failure is determined to be the result of a Watlow manufacturing defect, fee will be waived. A Fee could be applied to “No Trouble Found” (NTF) units.

**Note:** Watlow reserves the right to discontinue repair on obsolete product without notice. (Due to parts availability).

## Service and Repair Information

F.O.B.: Winona, Minnesota

### Catalog Products

Product	Clean and Calibrate	Clean, Calibrate and Repair
SERIES 93	75	120
SERIES 94	75	120
SERIES 96	75	120
SERIES 97	75	120
SERIES 733/734	150	175
SERIES 935	65	90
SERIES 942/945	190	250
SERIES 988	125	175
SERIES 998 / 999	125	175
SERIES C	65	90
SERIES F4	150	200
SERIES L	65	90

Product	Clean and Calibrate	Clean, Calibrate and Repair
SERIES PD	75	120
SERIES SD	75	120
SERIES TM	65	90
SERIES N7	125	175
EM Gateway	75	120
EZ-ZONE PM	75	120
EZ-ZONE RMC/RME/RMA	125	200
EZ-ZONE PM	75	120
EZ-ZONE ST	125	175
EZ-ZONE RUI	65	90
T321-XDD1-XXXX	50	75
UD1A-1CES-XXXX	125	160

### Systems Products

**Labor \$90 / hour, plus material costs.**

**Note:** Labor Rate subject to change without notice.

### Power Controllers

Controller/ Product Type	Test/Clean/ Calibrate and NTF	Input Firing Board	SCR Gate Board
<b>DIN-A-MITE® (see notes below table)</b>			
• DIN A – Board only	\$25.00	\$35.00	\$50.00
• DIN B – Board only	\$25.00	\$50.00	\$65.00
• DIN C – Board only	\$25.00	\$50.00	\$85.00
• DIN C – Enhanced board only	\$25.00	\$70.00	\$85.00
• DIN D – Board only	\$25.00	\$55.00	\$75.00
• DIN D – SCR old style replacement module	N/A	No Repair	\$135.00 SCR module
<b>QPAC</b>			
• 100 amps and below	\$100.00	Will quote repair chg.	
• 150 - 300 amps	\$100.00	Will quote repair chg.	
• 400 amps and above	\$100.00	Will quote repair chg.	
<b>POWER SERIES</b>	\$100.00	Will quote repair chg.	
<b>E-SAFE Relays</b>	\$60.00	N/A	
<b>VPAC</b>	\$25.00	Will quote repair chg.	

**Notes:** Old Style DIN-A-MITE package repair will be quoted on a "Time and Material" basis. Current labor rates are \$90.00 per hour, but are subject to change without notice. Availability or replacement with new style is dependent on remaining Warranty status. DIN-A-MITE PC board modification costs are the same as repair costs. Repair costs will not exceed 50 percent of the unit list price without customer authorization.

## Service and Repair Information

F.O.B.: Winona, Minnesota

### Catalog Products

#### Calibration with Certificate

Certificate prices are net to all customers. The following charges apply in addition to the applicable evaluation or repair fee if the product is returned for this service:

Certificate	Net Price	Available For...		Comments
		Returned Product	New Product	
Certificate of Conformance	NC	No	Yes	<ul style="list-style-type: none"> <li>• Certifies that a documented manufacturing process has been followed including customer specifications and all equipment is calibrated using standards traceable to NIST.</li> <li>• This document is <b>not</b> an ANSI/NCSL Z540-1-1994 calibration certificate.</li> </ul>
Certificate of Traceability	\$75.00	Yes	No	<ul style="list-style-type: none"> <li>• Certifies that calibrations were performed with equipment that is calibrated using standards traceable to NIST.</li> <li>• This document is <b>not</b> an ANSI/NCSL Z540-1-1994 calibration certificate.</li> </ul>
Certificate of Calibration (1st channel)	\$100.00	Yes	Yes	<ul style="list-style-type: none"> <li>• Calibration is performed by Watlow and verified and is certified by a third party service.</li> <li>• Certifies that the product has been calibrated with equipment that is calibrated using standards traceable to NIST.</li> <li>• Product performance data is <b>not</b> included with the report.</li> <li>• This document is an ANSI/NCSL Z540-1-1994 calibration certificate.</li> </ul>
Certificate of Calibration with Data (1st channel)	\$150.00	Yes	Yes	<ul style="list-style-type: none"> <li>• Calibration is performed by Watlow and verified and is certified by a third party service.</li> <li>• Certifies that the product has been calibrated with equipment that is calibrated using standards traceable to NIST.</li> <li>• Product performance data is included with the report.</li> <li>• This document is an ANSI/NCSL Z540-1-1994 calibration certificate.</li> </ul>
Additional Channels	\$25.00 ea.	Yes	Yes	<ul style="list-style-type: none"> <li>• This fee is applied if the customer requires that more than one channel be certified when purchasing a Certificate of Calibration either with or without product performance data.</li> </ul> <p><b>Note:</b> Many multi-loop controllers use multiplexing technology such that one calibration and certificate can serve for several channels. Consult Watlow technical support for information specific to your product.</p>

#### On-Site Service

**\$1,000.00/day net plus expenses. Contact application engineering to arrange details.**

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## SERIES D8

4 and 8-Loop Controllers  
with DeviceNet™

	<b>To order, complete the model number to the right with the information below:</b>	<b>D 8</b>	<b>0 - 0 0 0 0 -</b>	<b>0</b>
<b>Price:</b>				
\$1,550.00	<b>Number of Loops</b>			
2,335.00	4 = Four loops			
	8 = Eight loops			
	<b>Digital I/O Termination</b>			
60.00	0 = TB18 (screw terminals on controller)			
NC	1 = SCSI connector, customer supplies terminal board and cable			
145.00	2 = SCSI connector, TB50 (terminal board) and 3-foot cable			
165.00	3 = SCSI connector, TB50 (terminal board) and 6-foot cable			
310.00	4 = SCSI connector, TB50 (terminal board) and 3-foot right angle cable			
330.00	5 = SCSI connector, TB50 (terminal board) and 6-foot right angle cable			
	<b>Power Supply</b>			
NC	0 = No power supply			
145.00	3 = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A			
	<b>Special Inputs</b>			
	(Standard unit is configured for thermocouples and -10 to 60mV linear inputs. For other sensors, order special inputs. See page 86 for ordering instructions.)			
NC	0 = Thermocouples and -10 to 60mV inputs only			
40.00/loop	X = Number of current, voltage and RTD inputs			

**Other ordering information:**

For analog outputs, order DAC or SDAC modules (see page 97).

**Availability:**

Up to four weeks, depending on complexity and order release quantity. Contact factory for details.

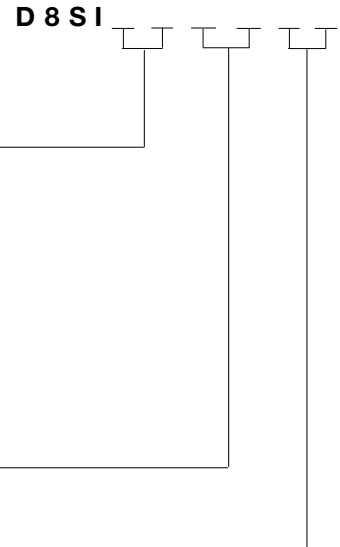
# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## SERIES D8

### Special Input Description

If special inputs are ordered in the controller part number, specify the following information in the part description:



- Special Input Type**  
 (Not required for thermocouple sensor inputs)  
 23 = RTD  
 43 = 0 - 10mA=(dc)  
 44 = 0 - 20mA=(dc)/4 - 20mA=(dc)  
 50 = 0 - 100mV=(dc)  
 52 = 0 - 500mV=(dc)  
 53 = 0 - 1V=(dc)  
 55 = 0 - 5V=(dc)  
 56 = 0 - 10V=(dc)  
 57 = 0 - 12V=(dc)

**Start Channel**  
 XX = Channel number XX

**End Channel**  
 XX = Channel number XX

**Note:**  
 Make sure the number of special inputs specified is equal to the number of special inputs in the controller part number.  
 Uninstalled kits are available. Consult the spare parts section (page 102) for part numbers and the user manual for installation instructions.

**Example:**  
 To specify 4 to 20mA=(dc) inputs on channels 1, 2 and 3 and a 0 to 10V=(dc) input on channel 4, include the following description in addition to the controller part number on the order:

“D8SI440103, D8SI560404”

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## Standard TLM-8

### Multi-Channel Thermal Limit Monitor

**UL® Listed**  
**CE Approved**  
**FM Approved**

#### Ordering Instructions:

1. Choose the desired sensor type.
2. Choose alarm relay option.
3. Choose mounting option.
4. Based on your sensor choice, use the Trip Point Chart and choose the desired alarm temperature for each channel.

To order, complete the model number to the right with the information below:

Price:

\$ 805.00	0 = Type RTD
805.00	1 = Type E T/C
805.00	2 = Type J T/C
805.00	3 = Type K T/C
805.00	4 = Type R T/C
805.00	5 = Type S T/C
805.00	6 = Type T T/C

#### Alarm Relays

NC	0 = Global relays only
70.00	1 = Global alarm relays and 8 channel alarm relays

#### Mounting

NC	0 = Panel
NC	1 = DIN Rail

#### Trip Point

NC	Channel 1
NC	Channel 2
NC	Channel 3
NC	Channel 4
NC	Channel 5
NC	Channel 6
NC	Channel 7
NC	Channel 8

T L M E

#### Trip Point Chart - (see Ordering Information, step four)

Temperature	Trip Point
<b>RTD</b>	
Unused Input	A
103°C (217°F)	B
121°C (250°F)	C
151°C (304°F)	D
215°C (419°F)	E
324°C (615°F)	F
404°C (759°F)	G
478°C (892°F)	H
584°C (1083°F)	I
708°C (1306°F)	J
824°C (1515°F)	K
Thermostat	K
<b>Type E T/C</b>	
Unused Input	A
101°C (214°F)	B
202°C (396°F)	C
302°C (576°F)	D
403°C (756°F)	E
502°C (936°F)	F
600°C (1112°F)	G
702°C (1296°F)	H
801°C (1474°F)	I
<b>Type J T/C</b>	
Unused Input	A
100°C (212°F)	B
152°C (307°F)	C
202°C (396°F)	D
251°C (484°F)	E
302°C (576°F)	F
350°C (662°F)	G

Type J T/C (continued)	
402°C (756°F)	H
450°C (842°F)	I
502°C (936°F)	J
554°C (1027°F)	K
600°C (1112°F)	L
653°C (1207°F)	M
704°C (1299°F)	N
754°C (1389°F)	O
<b>Type K T/C</b>	
Unused Input	A
100°C (212°F)	B
150°C (302°F)	C
200°C (392°F)	D
252°C (486°F)	E
303°C (577°F)	F
353°C (667°F)	G
401°C (754°F)	H
455°C (851°F)	I
504°C (939°F)	J
556°C (1033°F)	K
603°C (1117°F)	L
651°C (1204°F)	M
701°C (1294°F)	N
753°C (1387°F)	O
807°C (1485°F)	P
851°C (1564°F)	Q
907°C (1665°F)	R
952°C (1746°F)	S
998°C (1828°F)	T
1057°C (1935°F)	U
1101°C (2014°F)	V
1157°C (2115°F)	W
1205°C (2201°F)	X

Type R T/C	
Unused Input	A
501°C (934°F)	B
602°C (1116°F)	C
708°C (1306°F)	D
800°C (1472°F)	E
903°C (1657°F)	F
999°C (1830°F)	G
1100°C (2012°F)	H
1206°C (2203°F)	I
1306°C (2383°F)	J
1410°C (2570°F)	K
1497°C (2727°F)	L
1593°C (2899°F)	M
1720°C (3128°F)	N
<b>Type S T/C</b>	
Unused Input	A
506°C (943°F)	B
601°C (1114°F)	C
700°C (1292°F)	D
810°C (1490°F)	E
902°C (1656°F)	F
1005°C (1841°F)	G
1110°C (2030°F)	H
1210°C (2210°F)	I
1313°C (2395°F)	J
1404°C (2559°F)	K
1500°C (2732°F)	L
1600°C (2912°F)	M
1711°C (3112°F)	N

Type T T/C	
Unused Input	A
100°C (212°F)	B
202°C (396°F)	C
291°C (556°F)	D
384°C (723°F)	E

**Please Note:** Trip point values and specifications have changed from earlier TLM-8 versions. Please contact factory if ordering replacement units for models not beginning with TLME.



# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## Custom TLM-8

### Custom Multi-Channel Thermal Limit Monitor

UL® Listed  
CE Approved  
FM Approved

**Ordering Instructions:**

1. Choose the desired sensor type.
2. Choose alarm relay option.
3. Choose mounting option.
4. Enter three-character, factory-assigned code for trip points.

**Note:** Contact factory for custom trip point code. Non-recurring engineering fee and minimum annual order quantities apply. See below.

To order, complete the model number to the right with the information below:

<p><b>Price:</b></p> <p>\$ 1,030.00</p> <p>1,030.00</p> <p>1,030.00</p> <p>1,030.00</p> <p>1,030.00</p> <p>1,030.00</p> <p>1,030.00</p> <p>1,030.00</p>	<p><b>Sensor Type</b></p> <p>0 = Type RTD</p> <p>1 = Type E T/C</p> <p>2 = Type J T/C</p> <p>3 = Type K T/C</p> <p>4 = Type R T/C</p> <p>5 = Type S T/C</p> <p>6 = Type T T/C</p> <p><b>Alarm Relays</b></p> <p>NC 0 = Global relays only</p> <p>70.00 1 = Global alarm relays and 8 channel alarm relays</p> <p><b>Mounting</b></p> <p>NC 0 = Panel</p> <p>NC 1 = DIN Rail</p> <p><b>Trip Points</b></p> <p>NC XXX = Custom trip points, code assigned by factory</p>	<p><b>T L M C -</b></p> <p><b>0 - A</b></p>
---	---	---

495.00 **TLMC-NRE - Engineering Charge to Establish New Trip Point Code**  
 This covers creation of a custom part number for one configuration of eight trip points for one sensor type. Provide part number (except trip point code) and each trip point and temperature units with PO for engineering.

**Minimum Annual Order Quantity: 25 units**  
 In order to keep a trip point code active, Watlow expects this minimum annual purchase. If annual purchase falls below this level, Watlow will discontinue the trip point code.

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## CAS200

### 16-Channel Alarm Scanner

<p><b>Price:</b></p> <p>\$ 1,745.00</p>	<p><b>To order, complete the model number to the right with the information below:</b></p> <p><b>200 -</b></p> <p><b>16-Channel Alarm Scanner</b></p> <p><b>Terminal Board</b></p> <p>NC 0 = SCSI connector, customer supplies terminal board and cable 60.00 1 = 18-pin terminal block mounted on unit, no SCSI cable required 145.00 2 = 50-pin terminal board, includes 3 foot SCSI cable</p> <p><b>Power Supply</b></p> <p>NC 0 = No power supply 145.00 3 = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A</p> <p><b>SCSI Cables (For use with 50-pin terminal board)</b></p> <p>NC 0 = No special SCSI cable (3 foot cable is included with 50-pin terminal board) 60.00 1 = 6 foot SCSI cable 205.00 2 = 3 foot right angle SCSI cable 225.00 3 = 6 foot right angle SCSI cable</p> <p><b>Communications Cable (For EIA/TIA-232 communications with computer)</b></p> <p>NC 0 = 4 foot communications cable (DB-9 female/bare wire) 50.00 1 = 10 foot communications cable (DB-9 female/bare wire) 55.00 2 = 25 foot communications cable (DB-9 female/bare wire) 80.00 3 = 50 foot communications cable (DB-9 female/bare wire)</p> <p><b>Scanner Software</b></p> <p>NC 1 = Windows® based software with parallel port key NC 3 = Windows® based software with USB key</p> <p><b>Serial Communications Jumper Settings</b></p> <p>NC 0 = EIA/TIA-232 NC 1 = EIA/TIA-485 NC 2 = EIA/TIA-485 terminated</p> <p><b>Special Inputs</b></p> <p>(Standard unit is configured for thermocouples and -10 to 60mV linear inputs. For other sensors, order special inputs. See page 90 for ordering instructions.)</p> <p>NC 00 = Thermocouples and -10 to 60mV inputs only 40.00/ XX = Number of current and voltage inputs. RTDs are not available on the CAS200. channel Include leading zero as needed.</p>
---	--

**Availability:**

Up to four weeks, depending on complexity and order release quantity. Contact factory for details.

**Note:**

Please note that the hardware on this unit is not backwards compatible with earlier CAS versions. Contact the factory for new specifications.

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## CAS200

### Special Input Description

If special inputs are ordered in the controller part number, specify the following information in the part description:

C A S S I

**Special Input Type** \_\_\_\_\_

(Not required for thermocouple sensor inputs)

- 43 = 0 - 10mA<sub>rms</sub>(dc)
- 44 = 0 - 20mA<sub>rms</sub>(dc)/4-20mA<sub>rms</sub>(dc)
- 50 = 0 - 100mV<sub>rms</sub>(dc)
- 52 = 0 - 500mV<sub>rms</sub>(dc)
- 53 = 0 - 1V<sub>rms</sub>(dc)
- 55 = 0 - 5V<sub>rms</sub>(dc)
- 56 = 0 - 10V<sub>rms</sub>(dc)
- 57 = 0 - 12V<sub>rms</sub>(dc)

**Start Channel** \_\_\_\_\_

XX = Channel number XX

**End Channel** \_\_\_\_\_

XX = Channel number XX

**Note:**

Make sure the number of special inputs specified is equal to the number of special inputs in the controller part number.

Uninstalled kits are available. Consult the spare parts section (page 102) for part numbers and the user manual for installation instructions.

**Example:**

To specify 4 to 20mA<sub>rms</sub>(dc) inputs on channels 1, 2 and 3 and a 0 to 10V<sub>rms</sub>(dc) input on channel 4, include the following description in addition to the scanner part number on the order:

“CASSI440103, CASSI560404”

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## CLS204

### 4-Loop Controller

To order, complete the model number **204 -** to the right with the information below:

**Price:**

\$1,670.00	1 = Standard EPROM
1,670.00	2 = Extruder applications
1,980.00	3 = Ramp and soak option
1,790.00	4 = Enhanced features option (includes cascade, PV retransmit, ratio, remote set point)

**Terminal Board**

NC	0 = SCSI connector, customer supplies terminal board and cable
60.00	1 = 18-pin terminal block mounted on unit, no SCSI cable required
145.00	2 = 50-pin terminal board, includes 3 foot SCSI cable

**Power Supply**

NC	0 = No power supply
145.00	3 = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A

**SCSI Cables (For use with 50-pin terminal board)**

NC	0 = No special SCSI cable (3 foot cable is included with 50-pin terminal board)
60.00	1 = 6 foot SCSI cable
205.00	2 = 3 foot right angle SCSI cable
225.00	3 = 6 foot right angle SCSI cable

**Communications Cable (For EIA/TIA-232 communications with computer)**

NC	0 = No communications cable
50.00	1 = 10 foot communications cable (DB-9 female/bare wire)
55.00	2 = 25 foot communications cable (DB-9 female/bare wire)
80.00	3 = 50 foot communications cable (DB-9 female/bare wire)

**Serial Communications Jumper Settings**

NC	0 = EIA/TIA-232
NC	1 = EIA/TIA-485
NC	2 = EIA/TIA-485 terminated

**Special Inputs**  
(Standard unit is configured for thermocouples and -10 to 60mV linear inputs. For other sensors, order special inputs. See page 94 for ordering instructions.)

NC	0 = Thermocouples and -10 to 60mV inputs only
40.00/	X = Number of current, voltage and RTD inputs

loop

**Other ordering information:**

For analog outputs, order DAC or SDAC modules (see page 97). For easy setup, order WATVIEW software (see page 109).

**Availability:**

Up to four weeks, depending on complexity and order release quantity. Contact factory for details.

**Note:**

Please note that the hardware on this controller is not backwards compatible with earlier CLS versions. Contact the factory for new specifications.

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## CLS208

### 8-Loop Controller

**To order, complete the model number to the right with the information below:** 208 -

**Price:**

\$2,570.00	1 = Standard EPROM
2,570.00	2 = Extruder applications
3,205.00	3 = Ramp and soak option
2,690.00	4 = Enhanced features option (includes cascade, PV retransmit, ratio, remote set point)

**Terminal Board**

NC	0 = SCSI connector, customer supplies terminal board and cable
60.00	1 = 18-pin terminal block mounted on unit, no SCSI cable required
145.00	2 = 50-pin terminal board, includes 3 foot SCSI cable

**Power Supply**

NC	0 = No power supply
145.00	3 = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A

**SCSI Cables (For use with 50-pin terminal board)**

NC	0 = No special SCSI cable (3 foot cable is included with 50-pin terminal board)
60.00	1 = 6 foot SCSI cable
205.00	2 = 3 foot right angle SCSI cable
225.00	3 = 6 foot right angle SCSI cable

**Communications Cable (For EIA/TIA-232 communications with computer)**

NC	0 = No communications cable
50.00	1 = 10 foot communications cable (DB-9 female/bare wire)
55.00	2 = 25 foot communications cable (DB-9 female/bare wire)
80.00	3 = 50 foot communications cable (DB-9 female/bare wire)

**Serial Communications Jumper Settings**

NC	0 = EIA/TIA-232
NC	1 = EIA/TIA-485
NC	2 = EIA/TIA-485 terminated

**Special Inputs**

(Standard unit is configured for thermocouples and -10 to 60mV linear inputs. For other sensors, order special inputs. See page 94 for ordering instructions.)

NC	0 = Thermocouples and -10 to 60mV inputs only
40.00/	X = Number of current, voltage and RTD inputs loop

**Other ordering information:**

For analog outputs, order DAC or SDAC modules (see page 97). For easy setup, order WATVIEW software (see page 109).

**Availability:**

Up to four weeks, depending on complexity and order release quantity. Contact factory for details.

**Note:**

Please note that the hardware on this unit is not backwards compatible with earlier CLS versions. Contact the factory for new specifications.

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## CLS216

### 16-Loop Controller

**To order, complete the model number to the right with the information below:** 2 1 6 -

**Price:**

<p>\$3,495.00 3,495.00 4,120.00 3,615.00</p>	<p><b>Controller Type</b></p> <p>1 = Standard EPROM 2 = Extruder applications 3 = Ramp and soak option 4 = Enhanced features option (includes cascade, PV retransmit, ratio, remote set point)</p>	<p><b>Terminal Board</b></p> <p>NC 0 = SCSI connector, customer supplies terminal board and cable 145.00 2 = 50-pin terminal board, includes 3 foot SCSI cable</p>	<p><b>Power Supply</b></p> <p>NC 0 = No power supply 145.00 3 = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A</p>	<p><b>SCSI Cables (For use with 50-pin terminal board)</b></p> <p>NC 0 = No special SCSI cable (3 foot cable is included with 50-pin terminal board) 60.00 1 = 6 foot SCSI cable 205.00 2 = 3 foot right angle SCSI cable 225.00 3 = 6 foot right angle SCSI cable</p>	<p><b>Communications Cable (For EIA/TIA-232 communications with computer)</b></p> <p>NC 0 = No communications cable 50.00 1 = 10 foot communications cable (DB-9 female/bare wire) 55.00 2 = 25 foot communications cable (DB-9 female/bare wire) 80.00 3 = 50 foot communications cable (DB-9 female/bare wire)</p>	<p><b>Serial Communications Jumper Settings</b></p> <p>NC 0 = EIA/TIA-232 NC 1 = EIA/TIA-485 NC 2 = EIA/TIA-485 terminated</p>	<p><b>Special Inputs</b></p> <p>(Standard unit is configured for thermocouples and -10 to 60mV linear inputs. For other sensors, order special inputs. See page 94 for ordering instructions.)</p> <p>NC 00 = Thermocouples and -10 to 60mV inputs only 40.00/ XX = Number of current and voltage inputs. RTDs are not available on the CLS216. Include loop leading zero as needed.</p>
--	--	--	--	--	--	--	--

**Other ordering information:**

For analog outputs, order DAC or SDAC modules (see page 97). For easy setup, order WATVIEW software (see page 109).

**Availability:**

Up to four weeks, depending on complexity and order release quantity. Contact factory for details.

**Note:**

Please note that the hardware on this controller is not backwards compatible with earlier CLS versions. Contact the factory for new specifications.

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## CLS200

### Special Input Description

If special inputs are ordered in the controller part number, specify the following information in the part description:

CLSSI

**Special Input Type** \_\_\_\_\_

- (Not required for thermocouple sensor inputs)
- 20 = RTD1: 0.1°, -100.0 to 275.0°C (-148.0 to 572.0°F)  
(Not available on CLS216)
- 21 = RTD2: 1°, -120.0 - 840.0°C (-184.0 - 1544.0°F)  
(Not available on CLS216)
- 43 = 0 - 10mA=(dc)
- 44 = 0 - 20mA=(dc)/4 - 20mA=(dc)
- 50 = 0 - 100mV=(dc)
- 52 = 0 - 500mV=(dc)
- 53 = 0 - 1V=(dc)
- 55 = 0 - 5V=(dc)
- 56 = 0 - 10V=(dc)
- 57 = 0 - 12V=(dc)

**Start Channel** \_\_\_\_\_

XX = Channel number XX

**End Channel** \_\_\_\_\_

XX = Channel number XX

**Note:**

Make sure the number of special inputs specified is equal to the number of special inputs in the controller part number.  
Uninstalled kits are available. Consult the spare parts section (page 102) for part numbers and the user manual for installation instructions.

**Example:**

To specify 4 to 20mA=(dc) inputs on channels 1, 2 and 3 and a 0 to 10V=(dc) input on channel 4, include the following description in addition to the controller part number on the order:

“CLSSI440103, CLSSI560404”

# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## MLS300

### 16 and 32-Loop Controllers

<b>Price:</b>	<p><b>To order, complete the model number <b>3</b> to the right with the information below:</b></p> <p><b>Input Module</b></p> <p>\$1,405.00 16 = Sixteen channel Analog Input Module (AIM316)                  2,360.00 32 = Thirty-two channel Analog Input Module (AIM332)                  1,405.00 C1 = Sixteen channel Compact Input Module (CIM316)                  2,360.00 C2 = Thirty-two channel Compact Input Module (CIM332)</p> <p><b>Processor Module and Firmware</b></p> <p>NC 0 = Input module only (no MLS300-PM)                  2,510.00 1 = Standard firmware option                  2,510.00 2 = Extruder firmware option                  2,645.00 3 = Enhanced features option (includes cascade, PV retransmit, ratio, remote set point)                  3,125.00 4 = Ramp and soak firmware option</p> <p><b>Terminal Board</b></p> <p>NC 0 = SCSI connector, customer supplies terminal board and cable                  145.00 1 = 50-pin terminal board, includes 3 foot SCSI cable</p> <p><b>Power Supply</b></p> <p>NC 0 = None                  145.00 3 = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A</p> <p><b>SCSI Cables (For use with 50-pin terminal board)</b></p> <p>NC 0 = No special SCSI cable                  (3 foot cable is included with 50-pin terminal board)                  60.00 1 = 6 foot SCSI cable                  205.00 2 = 3 foot right angle SCSI cable                  225.00 3 = 6 foot right angle SCSI cable</p> <p><b>Serial Communication Cables (For communications with computer)</b></p> <p>NC 0 = No serial communications cable                  50.00 1 = 10 foot EIA/TIA-232 communications cable, DB-9/RJ12 phone plug                  55.00 2 = 25 foot EIA/TIA-232 communications cable, DB-9/RJ12 phone plug                  80.00 3 = 50 foot EIA/TIA-232 communications cable, DB-9/RJ12 phone plug                  110.00 7 = EIA/TIA-485 terminal block with 2 foot cable                  120.00 8 = EIA/TIA-485 terminal block with 4 foot cable</p> <p><b>Module Interconnect Cables</b></p> <p>NC 0 = 4 foot MLS AIM cable, RJ45/RJ45                  40.00 1 = 10 foot MLS AIM cable, RJ45/RJ45                  45.00 2 = 25 foot MLS AIM cable, RJ45/RJ45</p> <p><b>Serial Communications Jumper Settings</b></p> <p>NC 0 = EIA/TIA-232                  NC 1 = EIA/TIA-485                  NC 2 = EIA/TIA-485 terminated</p> <p><b>Special Inputs</b></p> <p>(Standard unit is configured for thermocouples and -10 to 60mV linear inputs. For other sensors, order special inputs. See page 96 for ordering instructions.)                  NC 00 = Thermocouples and -10 to 60mV inputs only                  40.00/ XX = Number of current, voltage and RTD inputs. Include leading zero as needed.                  loop</p>
---------------	---

**Other ordering information:**

For analog outputs, order DAC or SDAC modules (see page 97). For easy setup, order WATVIEW software (see page 109).

**Availability:**

Up to four weeks, depending on complexity and order release quantity. Contact factory for details.

**Note:**

Please note that the hardware on this controller is not backwards compatible with earlier MLS versions. Contact the factory for new specifications.



# Multi-Loop Controllers

F.O.B.: Winona, Minnesota

## MLS300

### Special Input Description

If special inputs are ordered in the controller part number, specify the following information in the part description:

**MLS300SI**

**Special Input Type** \_\_\_\_\_

(Not required for thermocouple sensor inputs)

20 = RTD1: 0.1° Platinum, -100.0 to 300.0°C (-148.0 to 572.0°F)

21 = RTD2: 1° Platinum, -120.0 - 840.0°C (-184.0 - 1544.0°F)

43 = 0 - 10mA<sub>rms</sub>(dc)

44 = 0 - 20mA<sub>rms</sub>(dc)/4 - 20mA<sub>rms</sub>(dc)

50 = 0 - 100mV<sub>rms</sub>(dc)

52 = 0 - 500mV<sub>rms</sub>(dc)

53 = 0 - 1V<sub>rms</sub>(dc)

55 = 0 - 5V<sub>rms</sub>(dc)

56 = 0 - 10V<sub>rms</sub>(dc)

57 = 0 - 12V<sub>rms</sub>(dc)

**Start Channel** \_\_\_\_\_

XX = Channel number XX

**End Channel** \_\_\_\_\_

XX = Channel number XX

**Note:**

Make sure the number of special inputs specified is equal to the number of special inputs in the controller part number.

Uninstalled kits are available. Consult the spare parts section (page 102) for part numbers and the user manual for installation instructions.

**Example:**

To specify 4 to 20mA<sub>rms</sub>(dc) inputs on channels 1, 2 and 3 and a 0 to 10V<sub>rms</sub>(dc) input on channel 4, include the following description in addition to the controller part number on the order:

“MLS300SI440103, MLS300SI560404”

**DAC/SDAC**

F.O.B.: Winona, Minnesota

**Analog Outputs for  
Controllers with  
DZC and Proprietary  
SDAC Outputs**

D A C -

To order, complete the model number  
to the right with the information below:

Price:

**DAC Type**

- \$255.00 1 = Dual digital to analog converter module (converts two DZC control outputs to two 0-5V=(dc) analog outputs). Separate power supply required.
- 255.00 2 = Dual digital to analog converter module, (converts two DZC control outputs to two 0 - 10V=(dc) analog outputs). Power supply is separate.
- 255.00 3 = Dual digital to analog converter module, (converts two DZC control outputs to two 4 - 20mA=(dc) analog outputs). Power supply is separate.
- 275.00 4 = Serial digital to analog converter module (SDAC); provides one high precision isolated voltage or current analog output (range is set from the controller). Separate power supply required if more than 1 SDAC used.

**Power Supply**

- NC A = None
- 85.00 B = 120V~(ac) 60Hz wall mount power supply adapter (15V=(dc) @ 800mA, powers up to 8 dual DAC modules).
- 145.00 H = 90 to 265V~(ac) 50/60HZ, +15V=(dc) @1.2A, powers up to 12 dual DAC modules.
- 145.00 L = 90 to 265V~(ac) 50/60HZ, +5V=(dc) @3A, powers up to 10 SDAC modules.

## Multi-Loop Service

F.O.B.: Winona, Minnesota

### On Site Service

\$1,000.00 /day net plus expenses. Contact application engineering to arrange details.

### Products That Cannot be Repaired

The following products may be returned and will be evaluated during the warranty period only. If the failure is found to be covered by the warranty, the product will be repaired or replaced at no charge. If no problem is found, an evaluation charge will be assessed. If the product is not in the warranty period or the failure is not covered by the warranty, we will return the product to the customer or dispose of it according to customer preference.

- DAC, SDAC, MSCIMs
- Power Supplies, cables and software keys
- TLM-8

The following products are no longer supported by repair or evaluation services:

- 8PID
- SYSTEM32 (including PIOM, RRAIM, OLOM, SSAIM, AOM)

### Warranty Repair

Warranty repair includes failures covered by the product warranty or the warranty of repair services. Once returned, products will be repaired. If the failure is not covered by the warranty, a repair fee will be billed. If no failure is found, an evaluation fee will be billed.

<b>Turn Around Time:</b>		2-3 weeks after receipt of unit
<b>Pricing:</b>		Determined by Watlow at the time repairs are completed.
	NC	Failure covered by warranty.
	See Standard Repair	Failure not covered by warranty.
	See Standard Repair	No problem found, evaluation fee.

Service prices net to OEM. Distributor takes 20 percent discount.

### Swap Repair

For a fee, a refurbished loaner unit can be supplied. Not all models are eligible. To utilize this service, a PO must be issued for the swap repair service. If the returned product meets the criteria for return to refurbished stock, the customer may opt to keep the loaner unit and give up claim on the returned unit. If the returned product does not meet the criteria for return to refurbished stock, the customer must either return the loaner unit and pay the evaluation fee or purchase the loaner unit at the normal price for new product.

<b>Turn Around Time:</b>		Same day if unit meets conditions listed below
<b>Pricing:</b>		Final charges determined by Watlow at the time repairs are completed.
	\$580.00 per module	Returned unit required standard repair.
	NC	Failure of returned unit covered by warranty.
	\$220.00	No problem found with returned unit (evaluation fee).
	Replacement Price	Returned unit is beyond economical repair or no unit returned.
<b>Conditions:</b>		<ul style="list-style-type: none"> <li>• Unit is a Series D8, CLS200, MLS300-PM, AIM316, AIM332, CAS200, CIM316 or CIM332 module</li> <li>• Serial number is provided to verify date sold and configuration</li> <li>• Unit is within the warranty period</li> <li>• Unit is standard hardware (special inputs and custom EPROM are accepted, but may limit Watlow's ability to ship same day.)</li> </ul>
<b>Disposition:</b>		If the failure is covered by the warranty, a full credit for the swap charge will be issued. If no problem is found, a partial credit will be issued in the amount of the swap fee less the evaluation fee.

Service prices are net to OEMs. Distributors take 20 percent discount. Replacement product is discounted normally.

## Multi-Loop Service

F.O.B.: Winona, Minnesota

### Standard Repair

Standard repair applies to products and failures not covered under warranty. All products submitted for repair are evaluated and repaired in one operation, a pre-repair evaluation is not available. If a product is returned for repair and no problem is found, the evaluation charge is billed.

**Turn Around Time:** two to three weeks after receipt of unit

Product	OEM *		Distributor *		Notes
	Repair	Evaluation	Repair	Evaluation	
D8, CLS200, MLS300-PM, AIM316, AIM332, CIM316, CIM332, CAS200, PPC2000, CPC400, CLS, MLS or CAS	\$440.00	\$110.00	\$440.00	No charge	
8LS	625.00	155.00	625.00	No charge	If firmware is 3.03 or later, includes upgrade to latest
8LS upgrade and repair (for standard controllers with 3.02 or earlier firmware)	985.00	155.00	985.00	No charge	Includes new processor board, latest firmware and ANASOFT3
WATVIEW Keys	105.00	No charge	105.00	No charge	Repair is replacement

\* Prices are net to OEM. Distributor takes 20 percent discount. Replacement product is discounted normally.

### Rush Repair or Upgrade

A rush service option is available for standard repairs and upgrade/update services. The rush service charge is in addition to the applicable repair charge.

**Turn Around Time:** one to two working days after receipt of unit

**Pricing:** \$110.00 surcharge per module (Price is net to OEM. Distributor takes 20 percent discount.)

### Hardware and Firmware Upgrade and Update Parts

An upgrade adds capabilities to the controller.

Product	Upgrade/Update	Price *	Notes
D8, CLS200, MLS300 or CAS200	Upgrade firmware	Difference in list price less appropriate discount	Price depends on which option is desired and number of channels.
	Add/change input resistors	See spare parts section of the price list (page 102)	
	Update firmware	Fewer than 10 - No charge 10 or more \$10.00/each	
TLME, TLMC	Change/set trip points	N/A	Customer can obtain standard resistors to set trip points or consult with technical support, but resistors are not for sale.

\* Standard discounts apply

## Multi-Loop Service

F.O.B.: Winona, Minnesota

### Hardware and Firmware Upgrade and Update Service

An upgrade adds capabilities to the controller. An update provides the latest version of the firmware option the controller was originally shipped with. Standard products are updated automatically when repaired under warranty or the standard repair service. The table below describes the update and upgrade services performed by the Watlow repair department. Service prices include a functional test and assume no failures.

**Turn Around Time:** two to three weeks after receipt of unit

Product	Upgrade/Update	Price *	Notes
D8, CLS200, MLS300-PM, AIM316, AIM332, CIM316, CIM332 or CAS200	Upgrade firmware	\$110.00 plus difference in list price less appropriate	Price depends on which option is desired and number of channels
	Add/change input resistors	\$110.00 plus \$40.00/input	
	Update firmware	\$110.00	
TLME, TLMC	Change/set trip points	\$110.00 plus \$10.00/channel	

\* Prices are net to OEM. Distributor takes 20 percent discount.

### Calibration Certificates

Certificate prices are net to all customers. The following charges apply in addition to the applicable evaluation or repair fee if the product is returned for this service:

Certificate	Net Price	Available For...		Comments
		Returned Product	New Product	
Certificate of Conformance	NC	No	Yes	<ul style="list-style-type: none"> <li>• Certifies that a documented manufacturing process has been followed including customer specifications and all equipment is calibrated using standards traceable to NIST.</li> <li>• This document is <b>not</b> an ANSI/NC SL Z540-1-1994 calibration certificate.</li> </ul>
Certificate of Traceability	NC	Yes	No	<ul style="list-style-type: none"> <li>• Certifies that calibrations were performed with equipment that is calibrated using standards traceable to NIST.</li> <li>• This document is <b>not</b> an ANSI/NC SL Z540-1-1994 calibration certificate.</li> </ul>
Certificate of Calibration (1st channel)	\$100.00	Yes	Yes	<ul style="list-style-type: none"> <li>• Calibration is performed by Watlow and verified and is certified by a third-party service.</li> <li>• Certifies that the product has been calibrated with equipment that is calibrated using standards traceable to NIST.</li> <li>• Product performance data is <b>not</b> included with the report.</li> <li>• This document is an ANSI/NC SL Z540-1-1994 calibration certificate.</li> </ul>
Certificate of Calibration with Data (1st channel)	\$150.00	Yes	Yes	<ul style="list-style-type: none"> <li>• Calibration is performed by Watlow and verified and is certified by a third-party service.</li> <li>• Certifies that the product has been calibrated with equipment that is calibrated using standards traceable to NIST.</li> <li>• Product performance data is included with the report.</li> <li>• This document is an ANSI/NC SL Z540-1-1994 calibration certificate.</li> </ul>
Additional Channels	\$25.00 ea.	Yes	Yes	<ul style="list-style-type: none"> <li>• This fee is applied if the customer requires that more than one channel be certified when purchasing a Certificate of Calibration either with or without product performance data.</li> </ul> <p><b>Note:</b> Many multi-loop controllers use multiplexing technology such that one calibration and certificate can serve for several channels. Consult Watlow technical support for information specific to your product.</p>

## Multi-Loop Service

F.O.B.: Winona, Minnesota

---

### Return to Stock

Product being returned for credit must meet the following conditions:

- Product must have been purchased within the last three months
- Product must have standard hardware. (EPROM changes, special inputs and trip points are accepted, but custom hardware may not be returned.)
- 20 percent restocking charge will apply.
- Other restrictions may apply

## Multi-Loop Spare Parts

F.O.B.: Winona, Minnesota

### CLS200, CAS200, D8 and CPC400

A007-30280-000	50-pin terminal board assembly (no cable)	\$ 105.00
A007-10602-320	CAS200 display replacement kit	430.00
A007-10602-500	CLS200/MLS300 display replacement kit	430.00
Z100-10012-100	120V~(ac) 60Hz, 15V=(dc) 800mA power supply adapter (wall mount)	85.00
0847-0254-0000	90 to 265V~(ac) 50/60Hz, +5V=(dc) @3A (to power relays or other devices)	145.00
0847-0255-0000	90 to 265V~(ac) 50/60Hz, +15V=(dc) @1.2A (to power one controller)	145.00
0219-0281-0000	1 foot SCSI cable for use with 50-pin terminal board	40.00
0219-0274-0000	3 foot SCSI cable for use with 50-pin terminal board	40.00
0219-0275-0000	6 foot SCSI cable for use with 50-pin terminal board	60.00
0219-3058-0300	3 foot SCSI cable with right angle connector for use with 50-pin terminal board	205.00
0219-3058-0600	6 foot SCSI cable with right angle connector for use with 50-pin terminal board	225.00
0219-3058-1150	18 inch cable, SCSI to ribbon	155.00
0219-1000-2004	4 foot serial communications cable, DB-9 female to bare wires	45.00
0219-1000-2010	10 foot serial communications cable, DB-9 female to bare wires	50.00
0219-1000-2025	25 foot serial communications cable, DB-9 female to bare wires	55.00
0219-1000-2050	50 foot serial communications cable, DB-9 female to bare wires	80.00
Z100-11557-000	Old style 1/8 DIN mounting bracket (2 each)	35.00
0822-0438-P000	Plastic mounting collar	3.00
Z100-0636-0000	Mounting brackets for plastic mounting collar (2 each)	7.00

### MLS300

Z100-30700-000	Processor module with standard EPROM	2,510.00
Z100-30700-100	Processor module with extruder EPROM	2,510.00
Z100-30700-200	Processor module with enhanced features	2,645.00
Z100-30700-300	Processor module with ramp soak EPROM	3,125.00
Z100-30710-010	AIM316 card set including MUX16 and V-to-F cards	885.00
Z100-30730-010	AIM332 card set including MUX16, MUX32 and V-to-F cards	1,500.00
Z100-30710-020	AIM316 terminal board, including bracket	670.00
Z100-30730-020	AIM332 terminal board, including bracket	1,045.00
0219-3078-1000	4 foot AIM cable, RJ45 connector to RJ45 connector	35.00
0219-3078-1030	10 foot AIM cable, RJ45 connector to RJ45 connector	40.00
0219-3078-1040	25 foot AIM cable, RJ45 connector to RJ45 connector	45.00
0219-1127-8010	10 foot RS-232 communications cable, DB-9 female to RJ12 phone plug	50.00
0219-1127-8025	25 foot RS-232 communications cable, DB-9 female to RJ12 phone plug	55.00
0219-1127-8050	50 foot RS-232 communications cable, DB-9 female to RJ12 phone plug	80.00
Z100-30786-000	RS-485 terminal block with 2 foot MLS300 communications cable	110.00
Z100-30786-100	RS-485 terminal block with 4 foot MLS300 communications cable	120.00
0219-0281-0000	1 foot SCSI cable for use with 50-pin terminal board	40.00
0219-0274-0000	3 foot SCSI cable for use with 50-pin terminal board	40.00
0219-0275-0000	6 foot SCSI cable for use with 50-pin terminal board	60.00
0219-3058-0300	3 foot SCSI cable with right angle connector for use with 50-pin terminal board	205.00
0219-3058-0600	6 foot SCSI cable with right angle connector for use with 50-pin terminal board	225.00
0219-3058-1150	18 inch cable, SCSI to ribbon	155.00
A007-30280-000	50-pin terminal board assembly (no cable)	105.00
0847-0254-0000	90 to 265V~(ac) 50/60Hz, +5V=(dc) @3A (to power relays or other devices)	145.00
0847-0255-0000	90 to 265V~(ac) 50/60Hz, +15V=(dc) @1.2A (to power one controller)	145.00
Z100-11557-000	Old style 1/8 DIN mounting bracket for processor module (2 each)	35.00
A007-10602-500	CLS200/MLS300 display replacement kit	430.00
0822-0438-P000	Plastic mounting collar	3.00
Z100-0636-0000	Mounting brackets for plastic mounting collar (2 each)	7.00

## Multi-Loop Spare Parts

F.O.B.: Winona, Minnesota

### Special Input Kits

Z100-21970-000	RTD1 for old-style CLS, CLS200, MLS300	\$ 30.00
Z100-21970-010	RTD2 for old-style CLS, CLS200, MLS300	30.00
Z100-29020-000	RTD for CPC400, D8	30.00
Z100-21970-100	0-20mA and 4-20mA for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-110	0-10mA for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-200	0-1V for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-210	0-5V for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-220	0-10V for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-230	0-100mV for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-240	0-500mV for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00
Z100-21970-250	0-12V for 8LS, MLS, CLS, CAS200, MLS300, CPC400, D8	30.00

### Software

0500-24000-000	WATVIEW CD	15.00
----------------	------------	-------

### TLM-8

Z100-21500-000	Removable TB kit	30.00
----------------	------------------	-------



## Communication Accessories

F.O.B.: Winona, Minnesota

### Configuration Software

These items are available for download free of charge at [www.watlow.com](http://www.watlow.com).

Item	Address
EZ-ZONE® Configurator	<a href="http://www.watlow.com/products/software/zone_config.cfm">www.watlow.com/products/software/zone_config.cfm</a>
EHG SL10 Software	<a href="http://www.watlow.com/products/software/ehg_SL10.cfm">www.watlow.com/products/software/ehg_SL10.cfm</a>
WATVIEW Configurator Edition*	<a href="http://www.watlow.com/products/software/watview.cfm">www.watlow.com/products/software/watview.cfm</a>
SERIES F4 Firmware Flash Update	<a href="http://www.watlow.com/f4">www.watlow.com/f4</a>

\*For SERIES 96, 97, CAS200, CLS200, F4, MLS300, POWER SERIES, SD and MICRODIN™. For further info, call (507) 454-5300.

## Converters

**Note:** Standard discounts **DO NOT** apply to these products. Consult *e-Solutions* or contact the factory for your discount.

Price	Part No.	Description
165.00	0847-0326-0000	USB to 485, USB to screw terminals
155.00	0847-0251-0000	USB to 485, USB to DB9 Male
145.00	0830-0473-0001*	232 to 485, DB9 Female to screw terminals
165.00	0830-0473-0005*	232 to 485, isolate, DB9 Female to screw terminals

\*When ordering the isolated 232 to 485 converter or using any 232 to 485 converter with computers (particularly laptops) that do not power a port powered converter, order the power supply from the Converter Accessories section below with the appropriate ac voltage input for your location.

## Converter Accessories

**Note:** Standard discounts **DO NOT** apply to these products. Consult *e-Solutions* or contact the factory for your discount.

These accessories are available for use with the 232 to 485 converters listed in the Converters section above.

Price	Part No.	Description
19.00	0830-0473-0003	6-foot serial communications cable, DB9 Male to DB9 Female
32.00	0830-0473-0002	Power supply (110-120V~(ac) input, 12V=(dc) output)
40.00	0830-0473-0004	Power supply (110-120V~(ac) input, 12V=(dc) output)

**Communication Accessories**

F.O.B.: Winona, Minnesota

**EM GATEWAY**

Price	Part No.	Description
\$ 410.00	EM00-GATE-0000	EM GATEWAY (Ethernet to Modbus® RTU/EIA232/485)

**Availability:**

1 -10 Same day  
 11 - up Contact factory

**EM GATEWAY Replacement Parts and Accessories**

Price	Part No.	Description
\$ 45.00	0830-0474-0000	Power supply, 115V~(ac) input, 24V=(dc) output
10.00	0600-0040-0001	Users Manual
10.00	0836-1032-0005	5 pin terminal block for EIA232/485 Modbus®
10.00	0836-1033-0002	2 pin terminal block for power supply

**Software**

F.O.B.: Winona, Minnesota

**SpecView—Standard**  
(Windows®-based HMI software)

To order, complete the model number to the right with the information below.

**Note:** Standard discounts **DO NOT** apply to these products. Consult *e-Solutions* or contact the factory for your discount.

		S V S - - - - - 0 0
<b>Price:</b>	<b>Version</b> _____	
\$ 995.00	S = Standard	
	<b>Ports</b> _____	
N/C	S = Single	
395.00	M = Multiple	
	<b>Historical Replay and Strategy Controller</b> _____	
N/C	0 = None	
395.00	H = Historical replay	
395.00	S = Strategy controller	
790.00	B = Both	
	<b>DDE and OPC</b> _____	
N/C	0 = None	
395.00	D = DDE	
395.00	C = OPC client	
790.00	B = Both	
	<b>ActiveX Container</b> _____	
N/C	0 = None	
395.00	A = ActiveX container	
	<b>Remote Users</b> _____	
N/C	00 = None	
500.00/ each	XX = Number of simultaneous remote users (01 to 99)	
	<b>Special Watlow Drivers</b> _____	
N/C	0 = None	
395.00	1 = SERIES F4 programmer	
	<b>Third Party Drivers</b> <sup>①</sup> _____	
N/C	0 = None	
395.00	1 = Allen-Bradley® DF1 (AB)	

<sup>①</sup> Special drivers for other third-party products (Honeywell, Eurotherm, Yokogawa and Marathon) are available directly from SpecView.

## Software

F.O.B.: Winona, Minnesota

### SpecView—Mini (Windows®-based HMI software)

**Note:** Standard discounts **DO NOT** apply to these products. Consult *e-Solutions* or contact the factory for your discount.

To order, complete the model number to the right with the information below.

		S V M - - - - - 0 0
<b>Price:</b>	<b>Version</b> _____	
\$ 850.00	M = Mini (limited to two instrument views) <sup>①</sup>	
	<b>Ports</b> _____	
N/C	S = Single	
395.00	M = Multiple	
	<b>Historical Replay and Strategy Controller</b> _____	
N/C	H = Historical replay	
395.00	B = Historical replay and strategy controller	
	<b>DDE and OPC</b> _____	
N/C	0 = None	
395.00	D = DDE	
395.00	C = OPC client	
790.00	B = Both	
	<b>ActiveX Container</b> _____	
N/C	0 = None	
395.00	A = ActiveX container	
	<b>Remote Users</b> _____	
N/C	00 = None	
500.00/ each	XX = Number of simultaneous remote users (01 to 99)	
	<b>Special Watlow Drivers</b> _____	
N/C	0 = None	
395.00	1 = SERIES F4 programmer	
	<b>Third Party Drivers</b> <sup>②</sup> _____	
N/C	0 = None	
395.00	1 = Allen-Bradley® DF1 (AB)	

<sup>①</sup> Because the mini version is limited to two instrument views, it may not be appropriate for use with some devices such as multi-loop controllers where a single device appears as multiple instruments in SpecView.

<sup>②</sup> Special drivers for other third-party products (Honeywell, Eurotherm, Yokogawa and Marathon) are available directly from SpecView.

# Software

F.O.B.: Winona, Minnesota

## SpecView – Upgrade (Windows®-based HMI software)

**Note:** Standard discounts **DO NOT** apply to these products. Consult *e-Solutions* or contact the factory for your discount.

To order, complete the model number to the right with the information below.<sup>①</sup>

		S V - - - - - 0 0
<b>Price:</b>	<b>Version Upgrade</b>	
N/C	U = No version change; upgrade options only	
\$ 540.00	N = Upgrade mini to standard	
	<b>Ports</b>	
N/C	0 = No upgrade	
395.00	M = Multiple	
	<b>Historical Replay and Strategy Controller</b> <sup>②</sup>	
N/C	0 = No upgrade	
395.00	H = Historical replay (already included with SpecView Mini)	
395.00	S = Strategy controller	
790.00	B = Both (do not order this option for SpecView Mini)	
	<b>DDE and OPC</b>	
N/C	0 = No upgrade	
395.00	D = DDE	
395.00	C = OPC client	
790.00	B = Both	
	<b>ActiveX Container</b>	
N/C	0 = No upgrade	
395.00	A = ActiveX container	
	<b>Remote Users</b>	
N/C	00 = No upgrade	
500.00/ each	XX = Add this number of simultaneous remote users (01 to 99)	
	<b>Special Watlow Drivers</b>	
N/C	0 = No upgrade	
395.00	1 = SERIES F4 programmer	
	<b>Third Party Drivers</b> <sup>③</sup>	
N/C	0 = No upgrade	
395.00	1 = Allen-Bradley® DF1 (AB)	

<sup>①</sup> An upgrade order must be accompanied by the Step 1 code from the Upgrade screen in SpecView from Watlow. Use the upgrade order form available at [www.watlow.com](http://www.watlow.com).

<sup>②</sup> If you are upgrading a SpecView Mini version to add strategy controller, order it with option "S". Do not order option "B", as Mini already includes historical replay.

<sup>③</sup> Special drivers for other third-party products (Honeywell, Eurotherm, Yokogawa and Marathon) are available directly from SpecView.

## Software

F.O.B.: Winona, Minnesota

### WATVIEW

(Windows®-based HMI software)

(Consult [www.watlow.com/products/software/watview](http://www.watlow.com/products/software/watview) for latest on controllers supported and firmware revisions required.)

To order, complete the model number to the right with the information below:

W V 0 0 - 0 0 - 0 0 0 0

	<b>Edition</b>	_____
\$ 1,550.00	D = Developer	
685.00	R = Runtime	
	<b>Key Type</b>	_____
NC	P = Parallel Port (LPT)	
NC	U = USB	

### Demonstration Kits

(For sales channel use. Not for resale to end-users)

**Net Price:**

\$205.00	<b>WV00-P0P0-0000</b>	Promotional edition of WATVIEW with parallel key. Functions as developer edition.
205.00	<b>WV00-P0U0-0000</b>	Promotional edition of WATVIEW with USB key. Functions as developer edition.

### WATVIEW Software Update

The latest revision of WATVIEW is available at [www.watlow.com/products/software](http://www.watlow.com/products/software).

**Note:** For repair options see Multi-Loop Service on page 99.