

# Platinum™ Series M400 Controller-Indicator

Athena's Platinum Series M400 offers easy user configuration and simple operation in a 1/16 DIN (48 x 48 mm) size panel-mounted controller suitable for a wide range of heat/cool control applications. Standard features include auto-tune, auto/man key, three outputs, and IP65 front panel protection. Available options include serial communications, analog control or retransmission output, transmitter power supply, special start-up and timer functions, auxiliary current transformer input, two front bezel colors, and DIN rail mounting.

- ▲ Field-Configurable Universal Inputs
- ▲ Bumpless Auto/Manual Transfer
- ▲ (IP65) Dust and Splash-Proof Front Panel
- ▲ On/Off Through Full PID Operation
- ▲ Adjustable Hysteresis and Deadband
- ▲ Outputs Configurable as Alarms
- ▲ Field-Configurable Process or Deviation Alarms
- ▲ CE Compatibility

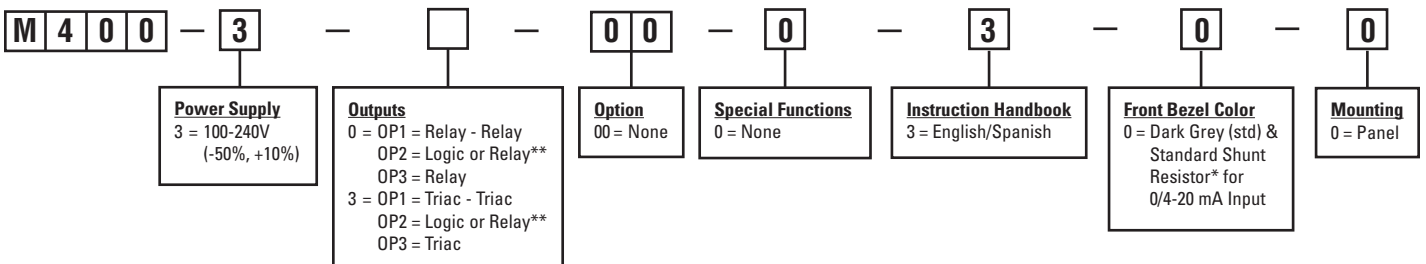


## Range Information



Input	Range	Input	Range
"J"	32°F to 1112°F (0°C to 600°C)	"S"	32°F to 2912°F (0°C to 1600°C)
"K"	32°F to 2192°F (0°C to 1200°C)	"T"	-328°F to 752°F (-200°C to 400°C)
"L"	32°F to 1112°F (0°C to 600°C)	"RTD"	-99.9°F to 572°F (-99.9°C to 300°C)
Millivolt Linear (scalable)	0 to 50 mV (0 - 20 mA) 10 to 50 mV (4 - 20 mA)	"RTD"	-328°F to 1112°F (-200°C to 600°C)

## Ordering Information



\* Standard Shunt-Resistor without field calibration = 1.10% input accuracy  
High Accuracy Shunt Resistor without field calibration = 0.20% input accuracy  
Either Shunt Resistor with field calibration = 0.10% input accuracy  
\*\* OP2 field-configurable via hardware jumper

## Technical Specifications

### Operating Limits

Ambient Temperature	32°F to 131°F (0°C to 55°C)
Relative Humidity Tolerance	5-95%, noncondensing
Power	100-240 Vac, 24 Vac/Vdc
Power Consumption	1.6 W max

### Performance

Accuracy	0.25% ± 1 digit (T/C and RTD) 0.1% ± 1 digit (mA* and mV)
Setpoint Resolution	1.0 count/0.1 count
Repeatability	± 1.0 count
Temperature Stability	2 μ V/°C
Process Sampling	0.5 sec
Digital Filtering	Adjustable 1-30 sec

### Control Characteristics

Setpoint Limits	Span of sensor
Alarms	Adjustable for high/low; selectable for process deviation
Proportional Band	0.5 to 999.9%
Integral	0.1 to 100.0 min
Derivative	0.1 to 10.00 min
Cycle Time	1 to 200 sec
Control Hysteresis	0.1 to 10.0%
Dead band	Span of sensor
(Output at 1 & 2)	
Auto-Tune	Operator initiated from front panel
Manual Control	Operator initiated from front panel

### Inputs

Thermocouple	J, K, L, S, T, Maximum lead resistance 100 ohms for rated accuracy
RTD	Platinum 2- and 3-wire, 100 ohms at 0°C, DIN curve standard (0.00385)
Linear	U-5 mV/10-50 mV, 0-20 mA/4-20 mA -1999 to 9999
Display Scalable	

### Outputs

0 = OP1 = Relay	SPST relay N.O., 2 A/250 V~, or 4/A/120 V~ (for resistive loads), triac 1 A/250 V (for resistive loads)
OP2 = Logic	(SSR drive) not isolated: 5 V~, ±10%, 30 mA max SPST relay N.O., 2 A/250 V~ (for resistive loads)
5 = OP1 = Triac	1 A/250 V ~ for contactor coil (for resistive loads)
OP2 = Logic	(SSR drive) not isolated: 5 V~, ±10%, 30 mA max

### Alarm Type

(Configurable through output operating mode – see manual)

### Mechanical Characteristics

Display	Dual 4 digit LED display
Numeric Range	-1999 to 9999
Front Panel Rating	IP65
Front Panel Cutout	45 mm x 92 mm
Connections	Screw terminal

Specifications subject to change without notice

Resources		Operating mode																																											
		<table border="1"> <thead> <tr> <th></th> <th>Control</th> <th colspan="2">Alarms</th> <th>Retransmission*</th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <th></th> <th></th> <th></th> <th></th> <th>PV/SP</th> </tr> </thead> <tbody> <tr> <td>1 Single output</td> <td>OP1</td> <td>OP2</td> <td>OP3</td> <td>OP4</td> </tr> <tr> <td>2 Single output</td> <td>OP2</td> <td>OP1</td> <td>OP3</td> <td>OP4</td> </tr> <tr> <td>3 Heat/Cool</td> <td>OP1</td> <td>OP3</td> <td>OP2</td> <td>OP4</td> </tr> <tr> <td>4 Heat/Cool</td> <td>OP1</td> <td>OP2</td> <td>OP3</td> <td>OP4</td> </tr> <tr> <td>5 Heat/Cool</td> <td>OP2</td> <td>OP3</td> <td>OP1</td> <td>OP4</td> </tr> </tbody> </table>					Control	Alarms		Retransmission*										PV/SP	1 Single output	OP1	OP2	OP3	OP4	2 Single output	OP2	OP1	OP3	OP4	3 Heat/Cool	OP1	OP3	OP2	OP4	4 Heat/Cool	OP1	OP2	OP3	OP4	5 Heat/Cool	OP2	OP3	OP1	OP4
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		<p>* The OP4 analog output option can be configured as process variable (PV) or setpoint (SP) retransmission –or– as an analog control output. The OP1, OP2, or OP3 output can be replaced by the OP4 analog control output option; the replaced output is forfeited.</p>																																											