

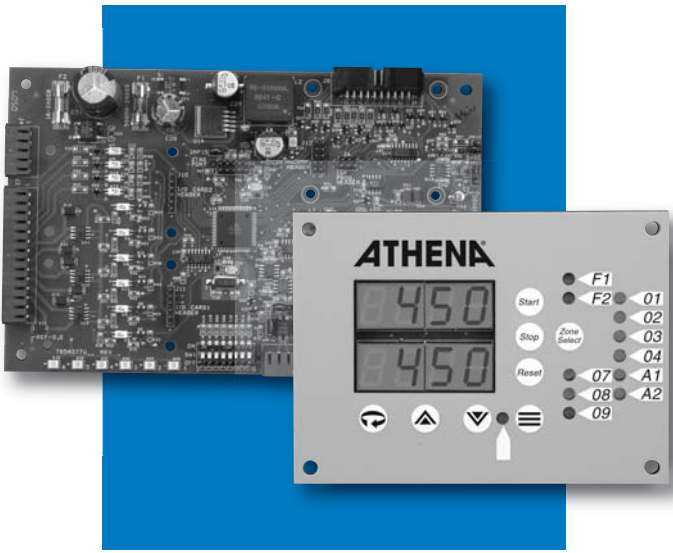
# C-Series 4C Universal Multi-Loop PID Controller

Distributed By: **B.J. Wolfe Enterprises, Inc**

Tel: (800) 554-1224, Fax: (818) 889-8417, Email: info@bjwe.com

Athena's new C-Series Multi-Loop PID Controller offers up to four loops of PID control with cascade and feed forward capabilities, for less cost than four separate loop controllers with similar capabilities. The controller is user-configurable and offers universal RTD, T/C and linear inputs with each PID loop capable of being independently auto-tuned.

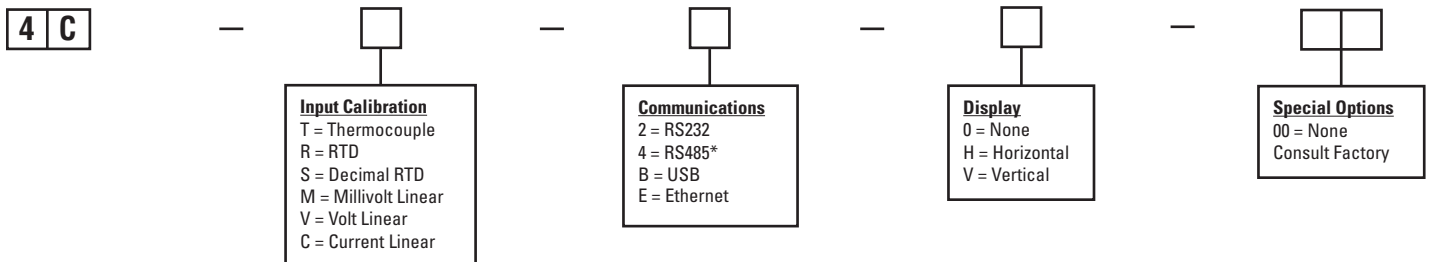
- ▲ Small size, 4.5" x 7" control board provides maximum flexibility in embedded machine design applications
- ▲ Low voltage, energy efficient 18 Vac/24 Vdc control board is designed to UL 508 standards
- ▲ Auto-tune provides precise tuning of PID algorithms
- ▲ Vertical or horizontal display orientations offer mounting flexibility
- ▲ Ambient 0-70°C temperature rating enables controller to withstand environment extremes
- ▲ Interface with PLC's and PC's



## Range Information

Input	Range	Input	Range
"B"	32°F to 3308°F (0°C to 1820°C)	"R"	-58°F to 3214°F (-50°C to 1768°C)
"C"	32°F to 4199°F (0°C to 2315°C)	"S"	-58°F to 3214°F (-50°C to 1768°C)
"E"	-238°F to 1832°F (-150°C to 1000°C)	"T"	-454°F to 752°F (-270°C to 400°C)
"J"	-328°F to 1400°F (-200°C to 760°C)	Platinel® II	-148°F to 2250°F (-100°C to 1232°C)
"K"	-454°F to 2462°F (-270°C to 1354°C)	100 ohm RTD	-328°F to 1562°F (-200°C to 850°C)
"N"	-450°F to 2372°F (-268°C to 1300°C)	100 ohm RTD (Decimal)	-328.0°F to 707.0°F (-200.0°C to 375.0°C)
"NNM"	32°F to 2570°F (0°C to 1410°C)	Current Linear (Scaleable)	4 to 20mA, 0 to 20mA
Millivolt Linear (Scaleable)	0 to 50mV/10 to 50mV 0 to 10mV/0 to 50mV 0 to 100mV	Volt Linear (Scaleable)	0 to 1V/0 to 5V 0 to 10V 0 to 5V

## Ordering Information



**Note:** Consult factory for output configurations. Athena's Multi-Comm™ Software supplied with 4C Controller  
\* RS485 is Standard

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## Technical Specifications

### Operating Limits

Ambient Temperature	32°F to 158°F (0°C to 70°C)
Relative Humidity Tolerance	90%, non-condensing
Power	18 Vac, 24 Vdc
Power Consumption	≤ 100 mA @ 18 Vac for control / display ≤ 1 A @ 18 Vac for digital I/O

### Performance

Accuracy	±0.20% of full scale (±0.10% typical), ±1 digit
Setpoint Resolution	1 count/0.1 count
Repeatability	±1 count
Temperature Stability	5 µV/°C (maximum)
TC Cold-End Tracking	0.05°C/°C ambient
Noise Rejection	100 dB common mode
Process Sampling	126 ms x number of active zones + 1

### Control Characteristics

Alarms	Adjustable for high/low; selectable process, or deviation
Proportional Band	2 to span of sensor
Integral	0 to 9600 sec
Derivative	0 to 2400 sec
Cycle Time	0 = 200 ms; 1 to 120 sec
Control Hysteresis	1 to span of sensor
Auto-Tune	Operator initiated
Manual Control	Operator initiated

### Inputs

Thermocouple	B, C, E, J, K, N, NNM, R, S, T, Platinel II 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	0-50 mV/10-50 mV, 0-20 mA/4-20 mA, 0-10 mV/0-50 mV, 0-100 mV, 0-1 V/0-5 V, 0-10 V, 1-5 V

### Outputs

Standard	Six, 24 Vdc sourcing outputs. Total current capacity is fused at 3/4 amp Digital outputs are powered with an isolated internal 24 Vdc power supply Load is wired between each individual output pin and the common 24 Vdc return pin A diode clamp is provided for inductive loads
Optional	Two Analog (1 per board), 0-20 mA, 4-20 mA or 0-10 Vdc Six Digital (3 per board)

### Communications Type

2	RS-232
4	RS-485 Modbus
B	USB
E	Ethernet

### Mechanical Characteristics

Display Optional	Vertical or Horizontal
Standard Display	Four, 7 segment LED digits for process value and four, 7 segment LED digits for setpoint Twelve monochrome LED's Eight push button switches Display board is connected via a 20 conductor ribbon cable Length not to exceed 6'
Custom Display	Up to 10, seven segment LED's Digits can be traded for 8 mono-color LED's per digit Up to 10 momentary push button switches Display board is connected via a 20 conductor ribbon cable Length not to exceed 6'

