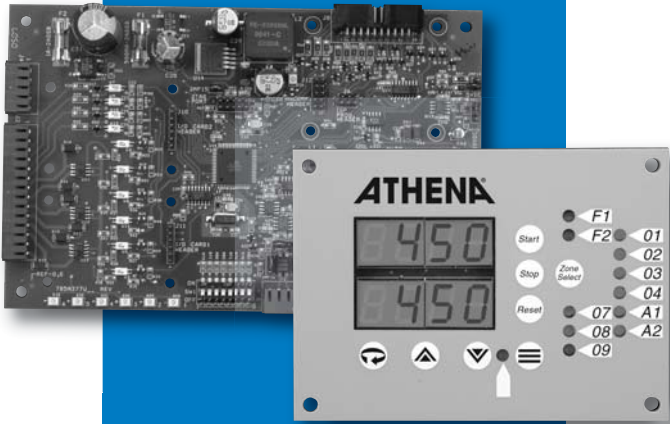


C-Series 4C Universal Multi-Loop PID Controller



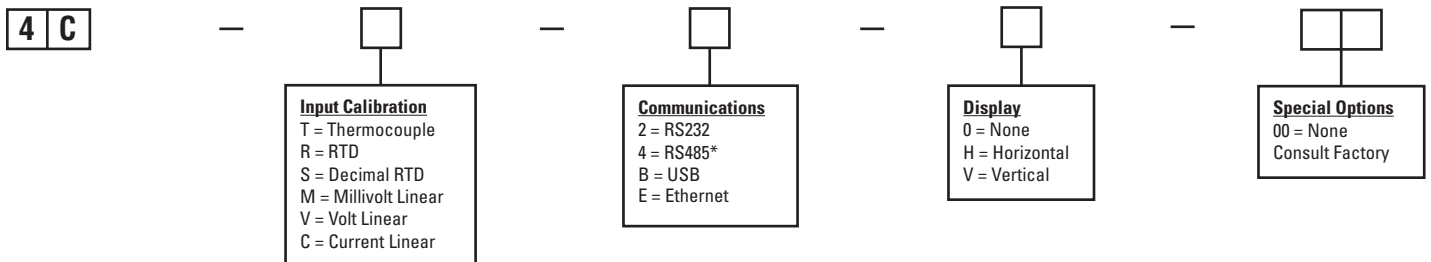
Athena's new C-Series Multi-Loop PID Controller offers up to four loops of PID control with cascade and feed forward capabilities, for less cost than four separate loop controllers with similar capabilities. The controller is user-configurable and offers universal RTD, T/C and linear inputs with each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

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' |

