

# C-Series 1ZC DIN Rail Universal Temperature/Process Controller



The Athena 1ZC is a DIN rail mounted, auto-tuning controller that can be used for precise control of a single control loop with two independent outputs configurable as direct-acting, reverse-acting or alarm. A bidirectional RS-485 serial communications interface is standard. Discrete LED displays become illuminated whenever associated outputs are active and provide system status. A wide range of sensor inputs are supported and many types of outputs are available.

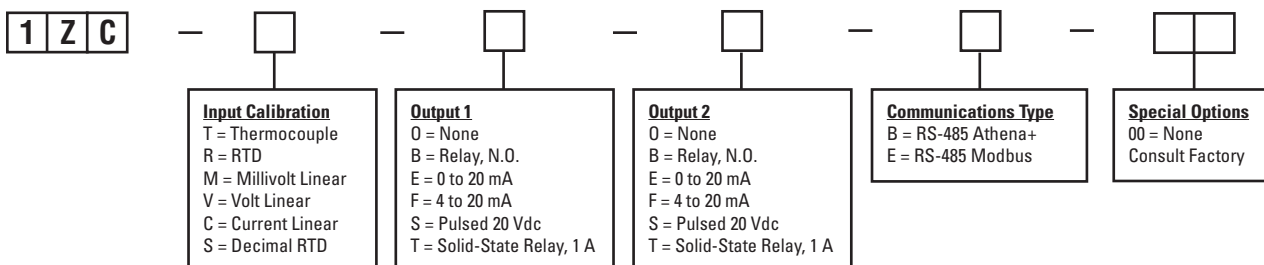
- ▲ Miniature DIN Rail Mountable Enclosure Stackable to Required Number of Zones
- ▲ Each Zone Independently Powered 100-250 V 50/60 Hz
- ▲ RS-485 Modbus® Serial Communications
- ▲ Easy Communications Bus Wiring
- ▲ Auto-Tune
- ▲ Each Output Universally Configurable as Heat/Cool or Alarm
- ▲ Accepts RTD (2 and 3 Wire), Thermocouple, and Linear Inputs
- ▲ Loop Break Alarm
- ▲ Pluggable Terminal Block for Easy Wiring and Controller Replacement
- ▲ Optically Isolated Inputs and Outputs
- ▲ UL, cUL, and CE Approvals



## 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: Athena's Multi-Comm™ Software supplied with 1ZC Controller

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## Technical Specifications

### Operating Limits

Ambient Temperature	32°F to 131°F (0°C to 55°C)
Relative Humidity Tolerance	90%, non-condensing
Power	100-250 V 50/60 Hz (single-phase) 125 to 300 Vdc
Power Consumption	Less than 6 VA

### 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	10 Hz (100 ms)

### Control Characteristics

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

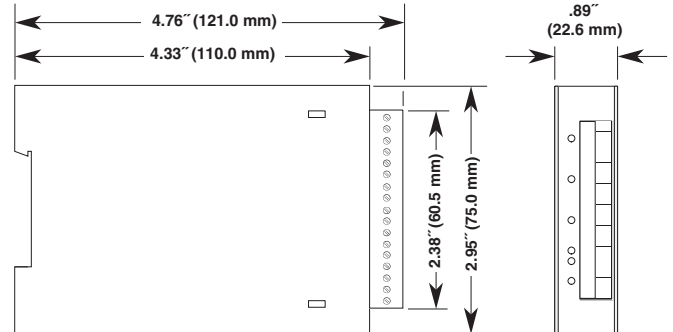
B	5 A/3 A (120/240 Vac), normally open relay
E	0 to 20 mA
F	4-20 mA, full output to load with 500 ohm impedance, max.
S	20 Vdc pulsed output
T	1 A, Solid-state relay

### Communications Type

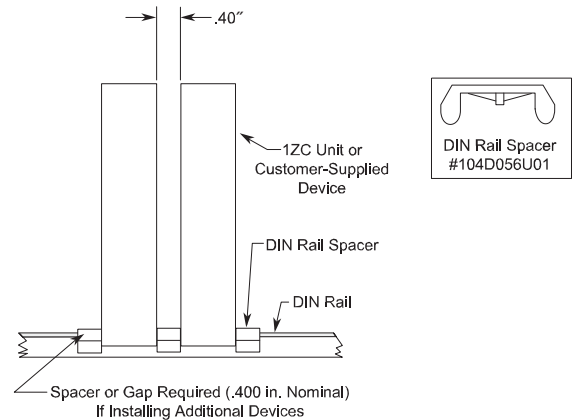
B	RS-485 Athena+
E	RS-485 Modbus

### Mechanical Characteristics

Display	LED displays for Sensor Error, RXD, TXD, Output 1, Output 2, Power/Run
Connections	Screw terminals
Mounting	Use 1.378" (35 mm) x .29" (7.5 mm) DIN Rail



### Mounting Clearance Requirements



### 1ZC Contact Identification

#### Contact #/Description\*

- 1 Power
- 2 Output 2
- 3 Output 1
- 4 TXD  
RXD
- 5 Sensor Error

\*Specifications subject to change without notice.

