

# C-Series 25C Universal Temperature/Process Controller

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

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



- ▲ Field-Configurable Universal Inputs
- ▲ User-Selectable Ramp to Setpoint
- ▲ 8-Level Ramp/Soak Control
- ▲ Bumpless Auto/Manual Transfer
- ▲ NEMA 4X (IP65) Dust and Splash-Proof Front Panel
- ▲ Decimal Display in 0.1° for Measured Temperatures Under 1000° F or C
- ▲ On/Off through Full PID Operation (P, PI, PD, PID)
- ▲ Adjustable Hysteresis and Deadband
- ▲ Outputs Configurable as Alarms
- ▲ Field-Configurable Process or Deviation Alarms; Latching or Non-Latching; Band and Inverse Band
- ▲ Dual Output/Dual Alarm Capabilities
- ▲ UL, cUL, and CE Approvals
- ▲ Options Include Remote Analog Setpoint, Multi-Function Contact/Digital Input, Transducer Excitation, and Auxiliary Output
- ▲ Special and Custom Options Available

The Athena 25C is a 1/4 DIN panel mounted, auto-tuning controller that can be used for precise control of a single loop with two independent outputs field-configurable as direct acting, reverse acting, and 2 alarms. RS-232 or RS-485 communications interfaces are available, and two digital LED displays provide visual indication of various controller functions.

## 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

2 5 C — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ] — [ ]

<b>Input Calibration Code</b> T = Thermocouple R = RTD S = Decimal RTD B = TC and RTD M = Millivolt Linear V = Volt Linear C = Current Linear A = All	<b>Output 1 Code</b> O = None B = Relay, N.O. E = 0 to 20 mA F = 4 to 20 mA (500 ohm max) G = 4 to 20 mA (800 ohm max) P = Pulsed 20 Vdc or 35 mA S = Pulsed 20 Vdc or 17 mA T = Solid-State Relay V = 0 to 5 Vdc X = 0 to 10 Vdc Y = Relay, N.C.	<b>Output 2 Code</b> O = None B = Relay, N.O. E = 0 to 20 mA F = 4 to 20 mA (500 ohm max) G = 4 to 20 mA (800 ohm max) P = Pulsed 20 Vdc or 35 mA S = Pulsed 20 Vdc or 17 mA T = Solid-State Relay V = 0 to 5 Vdc X = 0 to 10 Vdc Y = Relay, N.C.	<b>Alarm 1 Code</b> O = None B = Relay, N.O. S = 24 V T = Solid-State Relay	<b>Alarm 2 Code</b> O = None B = Relay, N.O. S = 24 V T = Solid-State Relay	<b>Communications Code</b> O = None A = RS-232 Athena + B = RS-485 Athena + E = RS-485 Modbus	<b>Option 1 Code</b> Aux Output/PV Retransmit PA = 4 to 20 mA PB = 1 to 5 V PC = 0 to 20 mA PD = 0 to 5 V Remote Analog Setpoint SA = 0 to 5 Vdc w/ switch SB = 1 to 5 Vdc w/ switch SC = 0 to 20 mA w/ switch SD = 4 to 20 mA w/ switch SE = Switch only SF = 0 to 10 Vdc w/ switch	<b>Option 2 Code</b> O = None Transducer Excitation 1 = 10 Vdc 2 = 12 Vdc 3 = 15 Vdc 4 = 5 Vdc	<b>Special Options</b> 00 = None Consult Factory
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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
Line Voltage	100 to 250 Vac 125 to 300 Vdc 24 Vac/dc optional
Power Consumption	Less than 6 VA (instrument)

### 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 70 dB series mode
Process Sampling	10 Hz (100 ms)
Digital Filtering	Adjustable 0.1 to 10

### Control Characteristics

Setpoint Limits	Span of Sensor
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	0.2 to 120 sec
Control Hysteresis	1 to span of sensor
Dead Band (Output 1 & 2)	Range of sensor
Ramp to Setpoint	1 to 9999 min
Auto-Tune	Operator initiated from front panel
Manual Control	Operator initiated from front panel

### 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
E	0-20 mA
F	4-20 mA, full output to load 500 ohm impedance max
G	4-20 mA, full output to load 800 ohm impedance max
P	20 Vdc or 35 mA
S	20 Vdc or 17 mA

### Outputs

T	1 A, Solid-state relay
V	0 to 5 Vdc
X	0 to 10 Vdc
Y	1 A, normally closed relay

### Alarm Outputs

B	5 A/3 A (120/240 Vac), mechanical relay
S	24 V, 20 mA
T	SSR, NC, 24-240 Vac

### Mechanical Characteristics

Display	Dual, 4-digit 0.36" (9.2 mm) LED display Process Value: Orange Setpoint Value: Green
Numeric Range	-1999 to 9999
Front Panel Rating	NEMA 4X (IP65)
Front Panel Cutout	3.622" x 3.622" (92 mm x 92 mm)
Connections	Screw terminals

Specifications subject to change without notice.

