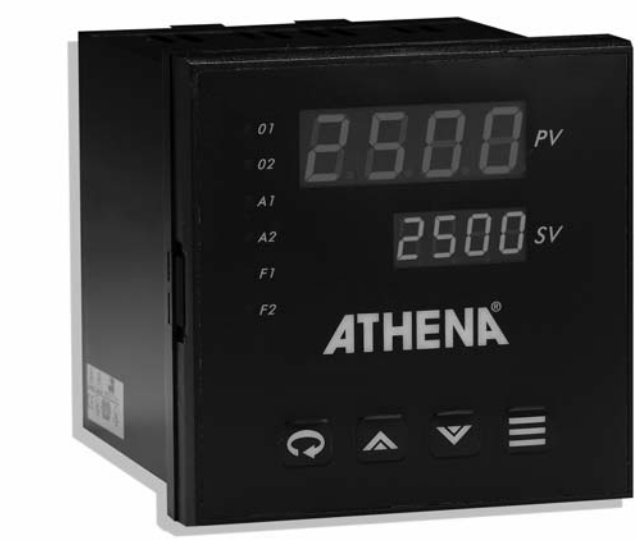
C-Series 25C Universal Temperature/Process Controller



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.

- 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

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

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Input Calibration Code
T = Thermocouple
R = RTD
S = Decimal RTD
B = TC and RTD
M = Millivolt Linear
V = Volt Linear
C = Current Linear
A = All

Output 1 Code
0 = 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.

Output 2 Code
0 = 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.

Alarm 1 Code
0 = None
B = Relay, N.O.
S = 24 V Solid-State Relay
T = Solid-State Relay

Alarm 2 Code
0 = None
B = Relay, N.O.
S = 24 V Solid-State Relay
T = Solid-State Relay

Communications Code
0 = None
A = RS-232 Athena +
B = RS-485 Athena +
E = RS-485 Modbus

Option 1 Code

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

Option 2 Code

0	None
Transducer Excitation	
1	10 Vdc
2	12 Vdc
3	15 Vdc
4	5 Vdc

Special Options
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.