



# LEGACY SERIES 16 UNIVERSAL TEMPERATURE / PROCESS CONTROLLER

The Athena Legacy 16 is a 1/16 DIN panel mounted, auto-tuning controller that can be used for precise control of a single loop with two independent outputs. The controller accepts thermocouple, RTD, voltage, or current input. RS-232 or RS-485 communications are available, and two digital LED displays provide visual indication of various controller functions.

## KEY FEATURES

- ▲ Field-Configurable Process, Deviation, or Latching or Non-Latching Alarms
- ▲ User-Selectable Ramp to Setpoint
- ▲ Autotuning, Heat or Cool
- ▲ NEMA 4X (IP65) Dust and Splash-Proof Front Panel
- ▲ On/Off Through Full PID Operation (P, PI, PD, PID)
- ▲ Adjustable Hysteresis and Heat/Cool SpreadDeadband
- ▲ Remote Setpoint Selection Options



- ▲ Dual Output/Dual Alarm Capabilities
- ▲ cUL, and CE Approvals
- ▲ Optional Process Variable Retransmission
- ▲ DIN Rail Option

## ORDERING INFORMATION



Input	Range	Code
"E" TC	0 to 1292° F	EF
"E" TC	-18 to 700° C	EC
"J" TC	0 to 1400° F	JF
"J" TC	0 to 750° C	JC
"K" TC	0 to 2460° F	KF
"K" TC	0 to 1349° C	KC
"N" TC	0 to 2370° F	NF
"N" TC	0 to 1300° C	NC
"R" TC	0 to 3200° F	RF
"R" TC	0 to 1750° C	RC
"S" TC	0 to 3200° F	SF
"S" TC	0 to 1750° C	SC
"T" TC	-200 to 600° F	TF
"T" TC	-100 to 300° C	TC
100 ohm RTD	-328 to 1562° F	PF
100 ohm RTD	-200 to 850° C	PC
100 ohm RTD	-199.0 to 450.0° F	DF
100 ohm RTD	-100.0 to 225.0° C	DC
1000 ohm RTD	-328 to 1562° F	XF
1000 ohm RTD	-200 to 850° C	XC
1000 ohm RTD	-199.0 to 450.0° F	ZF
1000 ohm RTD	-100.0 to 225.0° C	ZC
1 to 5 V	Scaleable	L1
0 to 5 V	Scaleable	L4
10 to 50 mV	Scaleable	L2
0 to 50 mV	Scaleable	L5
4 to 20 mA*	Scaleable	L3
0 to 20 mA*	Scaleable	L6
0 to 10 Vdc	Scaleable	L7
2 to 10 Vdc	Scaleable	L8
0 to 1 Vdc	Scaleable	L9

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.

**Special Options**  
00 = None  
Consult factory for available special options you may need for your application.

Standard Options	Code	Options
Code	Options	
00	= None	40 = Switch Closed
		41 = Switch Open
10	= Dual SSR, N.O.	42 = 5 V Input
20	= Dual Open Collector	
21	= Dual 24 Vdc	
22	= Dual SSR, N.C.	45 = RS-485, No Switch
23	= Relay, N.O.	46 = Switch Closed
		47 = Switch Open
30	= RS-232 (Athena+ Protocol)	48 = 5 V Input
		50 = 10 Vdc
		51 = 12 Vdc
31	= RS-485, No Switch	52 = 15 Vdc
36	= Switch Closed	53 = 5 Vdc
37	= Switch Open	
38	= 5 V Input	60 = 4 to 20 mA
		61 = 1 to 5 V
		62 = 0 to 20 mA
		63 = 0 to 5 V

# 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 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	1.0 count / 0.1 count
Repeatability	±1.0 count
Temperature Stability	5 mV/°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 sec

## CONTROL CHARACTERISTICS

Setpoint Limits	Span of Sensor
Alarms	Adjustable for high/low; selectable for process or deviation
Rate	0 to 900 sec
Reset	0 to 2400 sec
Cycle Time	0=200ms; 0.2 to 120 sec
Gain	0 to 400
Gain Ratio	0 to 2.0 (in 0.1 increments)
Control Hysteresis	1 to 100 (on/off configuration)
Spread (Output 2)	0 to 100 (above setpoint)
Ramp to Setpoint	1 to 100 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
T	1 A, Solid-state relay

## OUTPUTS (continued)

V	0 to 5 Vdc
X	0 to 10 Vdc
Y	5 A/3 A (120/240 Vac), normal closed relay

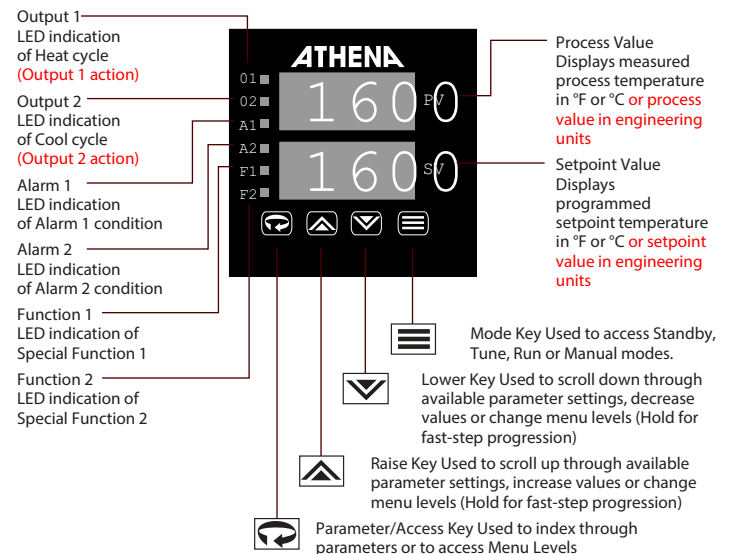
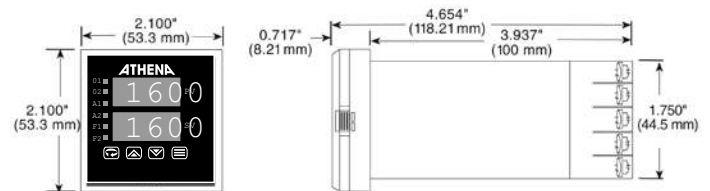
## ALARM TYPE

10	Dual SSR: Alarm 1: 24-240 Vac, 1 A Alarm 2: 24 Vac Only
20	Dual Open collector, 24 V, 20 milliamps
21	Dual 24 V, 20 mA
22	Dual SSR: Alarm 1: NC, 24-240 Vac, 1 A Alarm 2: 24 Vac Only
23	5 A/3 A (120/240 Vac), mechanical relay

## 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	1.771" x 1.771" (45 mm x 45 mm)
Connections	Screw Terminals

Specifications subject to change without notice.



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