

# SERIES 16

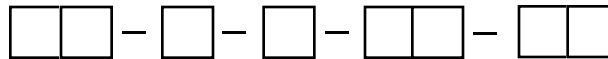
## 1/16 DIN Universal Process Controller

- Thermocouple, RTD, Voltage or Current Input
- User-Selectable Ramp to Setpoint
- Bumpless Auto/Manual Transfer
- NEMA 4X (IP65) Dust and Splash-Proof Front Panel
- On/Off through Full PID Operation (P,PI,PD,PID)
- Auto-Tuning, Heat or Cool
- Adjustable Hysteresis & Heat/Cool Spread
- Field-Configurable Process, Deviation, or Latching Alarms
- Remote Setpoint Select Option
- Dual Output/Dual Alarm Capabilities
- Optional RS232/RS485 Communications
- Optional Process Variable Retransmission
- May Be Ordered as a Limit Controller (Option ED)



## Ordering Information

### Model 16



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
"L" TC (Platinel® II)	0 to 2372° F	LF
"L" TC (Platinel® II)	-18 to 1300° C	LC
"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 (Heating) Configuration Code**

0 = None  
 B = Relay, 5 A/3 A,  
 F = 4-20 mA  
 S = Pulsed 20 Vdc  
 T = S.S. Relay, 1 A  
 E = 0-20 mA

**Output 2 (Cooling) Configuration Code**

0 = None  
 B = Relay, 5 A/3 A  
 F = 4-20 mA  
 S = Pulsed 20 Vdc  
 T = S.S. Relay, 1 A  
 E = 0-20 mA  
 Y = "B" relay, NC

**Standard Options**

Code	Options
00	= None
10	= Dual SSR, N.O.
20	= Dual Open Collector
21	= Dual 24 Vdc
22	= Dual SSR, N.C.
30	= RS-232
31	= RS-485
40	= Switch Closed
41	= Switch Open
42	= 5 V Input
50	= 10 Vdc
51	= 12 Vdc
52	= 15 Vdc
53	= 5 Vdc
60	= 4 to 20 mA
61	= 1 to 5 V
62	= 0 to 20 mA
63	= 0 to 5 V
66	= Heater Break Alarm
71	= 10 to 60 A

**Special Options**  
 ED = Limit Controller  
 (Other options, consult factory)



\*Milliamp ranges are available with 2.52 ohm resistor (supplied).

## SPECIFICATIONS

### OPERATING LIMITS

Temperature	32° to 131° F (0° to 55°C)
Humidity	90% R.H. maximum, non-condensing
Line Voltage	100 to 250 V 50/60 Hz 125 to 300 Vdc 24 Vac/Vdc (optional)
Power consumption	Less than 6 VA (instrument)

### PERFORMANCE

Accuracy	±0.2% of FS, ± one digit
Setpoint	
Resolution	1 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	Common mode > 100 dB Series mode > 70 dB
Process Sampling	10 Hz (100 ms)
Linear Input:	L1 to L7 (Refer to Ordering Codes)
Engineering Units	Scalable, -1999 to 9999
Digital Filtering	0.1, 1.0, or 10 sec
Decimal Position	Selectable, none, 1/10, or 1/100

### CONTROL CHARACTERISTICS

Setpoint Limits	Limited to configured range of TC and RTD
Alarms	Adjustable for high/low; selectable process or deviation
Rate	0 to 900 sec
Reset	0 to 3600 sec
Cycle Time	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 minutes
Autotune	Operator-initiated from front panel
Manual Control	Operator-initiated from front panel

### INPUTS

Thermocouple	K, J, N, R, T, S, Platinel®II Maximum lead resistance, 100 ohms for rated accuracy
RTD	Platinum, 3-wire, 100 ohms at 0°C, DIN curve standard (0.00385) ; 1000 ohms
Linear	Current and voltage (refer to ordering code)

### OUTPUTS

#1 reverse-acting (Heating)	
#2 direct-acting (Cooling)	
B	Relay 5 A @ 120 Vac, 3 A @ 240 Vac
F	4-20 mA, 500 ohms max.
S	20 Vdc pulsed
T	Solid-state relay, 1 A
Alarms	Optically isolated triac, rated 1 A, 120/240 Vac @ 25°C DC - 20 mA sink or 24 V supply

### MECHANICAL CHARACTERISTICS

Display	Dual, 4-digit, 9.2 mm, Process: orange Menu/parameter: green
Front Panel Rating	NEMA 4X (IP65)
Connections	Input and output via barrier strip, with locking terminals
Contacts	Twin bifurcated, double-wipe

Specifications subject to change without notice.

