

## HIGH ACCURACY, FLEXIBLE CONTROL, LOW COST!

Future Design's "100" series redefines the standard for 1/16, 1/8 and 1/4 DIN temperature controllers. Fast input scan rates (5 per second), 18 bit input resolution and 15 bit output resolution as well as fuzzy modified PID control provide not only the highest accuracy, but temperature control minimizing over/under shoot while maintaining fast process response.

The "100" series can be configured with up to 3 control outputs (2 PID fuzzy + alarm). A fourth output can be configured for RS232/485 Modbus or PV analog retransmission.

The 100 series can also be equipped with an isolated transmitter power supply when the second control output is not required.

Standard software functionality includes Fuzzy Logic + PID, soft start ramp, Lock out protection, bumpless transfer, user defined menu operation, timer function, and more. With isolated inputs/outputs, UL/cUL and CE, the 100 series is the clear choice for temperature control applications.



### FDC - 100 SERIES CONTROLLERS

- Fuzzy Logic PID Temperature Control
- Up to three Control outputs
- 5VDC & 14VDC SSR
- Variety of Alarm modes
- Transmitter Power Supply
- SEL Function to arrange user menu
- Nema 4X/IP65 protection available
- FREE Data Acquisition Software – Multiview CFR21 Part 11 Features!

## FDC-100 SERIES SPECIFICATIONS

### POWER

90-250VAC, 50/60Hz  
 11-26VAC/VDC

### INPUT (18 BIT A/D RESOLUTION)

**Thermocouple (T/C):** Type J,K,T,E,B,R,S,N,L  
**RTD:** PT 100 ohm RTD (DIN or JIS)  
**Range:** Per table in order manual  
**Accuracy:** Typically better than  $\pm .25\%$  of span  
**Cold Junction Compensation:** 0.1°C/°C ambient typical  
**Sensor Break:** Protection mode configurable  
**Common Mode Rejection:** 120dB  
**Sample Rate:** 5 times per second

### CONTROL

**Proportional Band:** 0.1-500°C (0.1-900°F)  
**Reset (Auto):** 0-1000 seconds  
**Rate (Derivative):** 0-360.0 seconds  
**Cycle Time:** 0-.1 to 90 seconds.  
**Ramp Rate:** 0-500°C (900°F)/minute or hour  
**Timer Dwell:** 0-4553.6 minutes.  
**On-Off:** with adjustable hysteresis (0.1-90.0°F)  
**Control Action:** Direct and reverse

### INDICATION (4 DIGIT DISPLAY)

**Process Display:** 0.56" (4100), .4" (9100,8100) red.  
**Setpoint Display:** 0.4" (4100), .31" (9100,8100) green.  
**Status Indicator:** Out1, Out2, Alm, Man, °C, °F, AT

### ENVIRONMENTAL AND PHYSICAL

**Operating Temperature:** -10 to 50°C  
**Storage Temperature:** -40 to 60°C  
**Humidity:** 0-90% RH (non-condensing)  
**Insulation:** 20M ohms minimum (500VDC)  
**Dielectric Strength:** 2000VAC, 50/60Hz for 1 minute  
**Shock Resistance:** 200m/s<sup>2</sup> (20G)  
**Vibration:** 10-55Hz, 10m/s<sup>2</sup> for 2 hours  
**Moldings:** Flame retardant polycarbonate  
**IP Panel Rating:** IP50 (IP65 optional)  
**Dimensions\Weight:**  
 9100: 1.99" (H) x 1.99" (W) x 4.12" (D) - 5.3oz (150g)  
 8100: 3.77" (H) x 1.88" (W) x 2.55" (D) - 7.4oz (210g)  
 4100: 3.77" (H) x 3.77" (W) x 2.08" (D) - 8.84oz (250g)

# ORDERING INFORMATION

9100 = 1/16 DIN CONTROLLER.

8100 = 1/8 DIN CONTROLLER.

4100 = 1/4 DIN CONTROLLER.

Enter a number in each box which corresponds to the specifications you want when ordering the FDC-100 series.

FDC-9100

FDC-8100 -

FDC-4100

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## POWER INPUT

- 4: 90-250VAC 50/60 HZ
- 5: 11-26VAC/VDC
- 9: Special Order

## SIGNAL INPUT

- 1: Thermocouple: J,K,T,E,B,R,S,N,L  
RTD: PT100DIN & JIS
- 9: Special Order

## OUTPUT 1

- 0: None
- 1: Relay 2A/240VAC resistive (SPST)
- 2: SSR Drive 5VDC @ 30mA
- 3: 4-20/0-20mA linear, isolated, maximum load 500 ohms
- 4: 1-5/0-5VDC linear, isolated, minimum impedance 10K ohms
- 5: 0-10VDC linear, isolated, minimum impedance 10K ohms
- 6: Triac 1A/240VAC
- C: SSR Drive 14VDC @ 40mA
- 9: Special Order

## OUTPUT 2/ALARM2

- 0: None
- 1: Form A Relay 2A/240VAC resistive (SPST)
- 2: SSR Drive 5VDC @ 30mA
- 3: 4-20/0-20mA linear, isolated, maximum load 500 ohms
- 4: 1-5/0-5VDC linear, isolated, minimum impedance 10K ohms
- 5: 0-10VDC linear, isolated, minimum impedance 10K ohms
- 6: Triac 1A/240VAC
- 7: 20VDC/25mA PS Isolated
- 8: 12VDC/40mA PS Isolated
- 9: 5VDC/80mA PS Isolated
- C: SSR Drive 14VDC @ 40mA
- A: Special Order

## ALARM 1

- 0: None
- 1: Form C Relay 2A/240VAC resistive (SPDT)
- 9: Special Order

## COMMUNICATIONS

- 0: None
- 1: RS-485 Modbus RTU
- 2: RS-232 Modbus RTU
- 3: 0-20/4-20mA retransmission Isolated, max load 500 ohms
- 4: 0-5/1-5VDC retransmission Isolated, max load 10K ohms
- 5: 0-10VDC retransmission Isolated, max load 10K ohms
- 9: Special Order

## PROTECTIVE CLASS

- 0: IP50 Standard
- 1: IP65 (Nema 4X)
- 2: Din Rail Mount w/IP50 (FDC9100 only)
- 3: Din Rail Mount w/IP65 (FDC9100 only)

