


**FDC "C" SERIES CONTROLLERS**
**SINGLE DISPLAY, HIGH ACCURACY, LOW COST!**

Future Design's "C" series raises the bar for 1/16 and 1/32 DIN single display 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 "C" series can be equipped with up to 2 control outputs that can be configured as two PID + fuzzy or single PID + fuzzy with alarm. A third output can be configured for RS232/485 Modbus communications or process retransmission (retrans on C21 only).

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 "C" series is the right control for single display temperature control requirements.

- Fuzzy Logic PID Temperature Control
- Up to two Control outputs
- Red or Green LED display.
- 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- "C" 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 (RED OR GREEN)**

**Process and Setpoint shared display:**  
 0.4" LED, 4 digits.  
**Status Indicator C91:** PV, SV, Out1, Out2, °C, °F, Man  
**Status Indicator C21:** Out1, Out2

**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:** C91-IP30/C21 - IP65 (Nema 4X)  
**Dimensions\Weight:**  
 C21: 1.04" (H) x 1.96" (W) x 4.36" (D) - 4.23oz (120g)  
 C91: 1.89" (H) x 1.89" (W) x 3.7" (D) - 4.94oz (140g)

# ORDERING INFORMATION

C91 = 1/16 DIN CONTROLLER.

C21 = 1/32 DIN CONTROLLER.

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

FDC-C91  
FDC-C21

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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
- A: RS485 Modbus RTU (C91 only)
- C: SSR Drive 14VDC @ 40mA
- B: Special Order

## COMMUNICATIONS

- 0: None
- 1: RS-485 Modbus RTU (C21 only)
- 2: RS-232 Modbus RTU (C21 only)
- 3: 0-20/4-20mA retransmission Isolated, max load 500 ohms (C21 only)
- 4: 0-5/1-5VDC retransmission Isolated, max load 10K ohms (C21 only)
- 5: 0-10VDC retransmission Isolated, max load 10K ohms (C21 only)
- 9: Special Order

## DISPLAY COLOR

- 0: Red
- 1: Green

