FUTUREDESIGN CONTROLS

The FDC-P Series of controllers, the FDC-P41 ¼ DIN and FDC-P91 1/16 DIN, with up to 9 Profiles (up to 64 segments/profile) and 5 outputs set new standards for single loop Profile controls. Packed with performance and features for simple or complicated OEM applications, the P Series provides an unrivaled value.

Exceptionally easy to use, the P Series offers up to 9 Profiles with up to 64 segments per program, maximum of 4 control outputs, configurable Event input, PV/SP retransmission (15-bit), serial Modbus RTU communication option (output #5), fast scan rate (5 times/second), user friendly prompts and a Home Page feature that make it the right choice for a Profile control.

The P Series offers a full range of universal high resolution (18 bit) inputs; T/C, RTD and linear mA/VDC inputs. Power requirement of either 90-250 VAC or optional 11-26 VAC/VDC allows the P Series to be used virtually anywhere.

Control outputs include Relay, SSR Drive, Triac, mA & VDC with manual or Auto-Tune PID. Outputs 2, 3 & 4 configurable as Control (output #2 only), Alarm or Event outputs. Outputs 2, 3, 4 & 5 may be configured as a transmitter power supply.

Outputs 4 & 5 are also configurable as Retransmission output (PV or SP) to recorders or for multizone systems where a P Series may act as a master setpoint control to client controllers. Serial communication is available on output 5.

P SERIES

FDC P SERIES PROFILE CONTROLS

- 9 Programs (up to 64 segments/program)
- Up to 5 Outputs
- Event Input
- Shallow Panel Depth
- PID Selections/Segment
- Security/Password

http://www.futuredesigncontrols.com/P_Series.HTM

FDC-P SERIES SPECIFICATIONS

POWER

90-250 VAC, 47-63Hz, 12VA, 5W Maximum
11-26 VAC/VDC; 12VA, 5W Maximum

INPUT

Thermocouple: Type J, K, T, E, B, R, S, N, L, C & P
RTD: PT 100 ohm DIN and PT 100 JIS
Linear: 4-20mA, 0-20mA, 0-60mV, 0-1, 0-5, & 0-10VDC
Range: Per Table in manual
Accuracy: Typically better than +/- 0.25%; see table in manual
Sensor Break: 4 seconds for T/C & RTD inputs
0.1 second for linear mA & VDC inputs
Common Mode Rejection: 120dB
Sample Rate: 5 times per second
Event Input: Profile Run, Hold, Abort, Advance Segment, PID#2, Manual Mode and Off

CONTROL, ALARM & EVENT OUTPUT TYPES

Relay: 2.0 Amp/240VAC
SSR Drive: 5 VDC@30mA and 14VDC@40mA
Triac: 1.0 Amp/240VAC
Linear: Isolated 0-20/4-20mA, maximum 500 ohm load
Isolated 0-5/1-5/0-10VDC, minimum 10K ohm load
PID: PB; 0.1-900F / I; 0-1000 sec / D; 0-360.0 sec

INDICATION

Dual LED 4 Digit Displays: Process 0.56" and Setpoint 0.4".
Status Indication:
- Output 1, 2, 3 and 4 status (P91 only has 3 outputs)
- Units; degrees C or F
- Profile: Run, Hold and up & down arrows for Ramp up, Ramp down and Dwell (soak).

OUTPUT OPTIONS

First Output:
Relay 2.0 Amp @240VC (SPST)
SSR Drive 5VDC@30mA or 14VDC@40mA
Triac 1.0 Amp @240VAC
mA/VDC (PID)

Second Output*:
Relay 2.0 Amp @240VC (SPST)
SSR Drive 5VDC@30mA or 14VDC@40mA
Triac 1.0 Amp @240VAC
mA/VDC (PID)
Transmitter Power Supply (isolated)***

Third Output**:
Relay 2.0 Amp @240VC (P41 SPDT; P91 SPST)
SSR Drive 5VDC@30mA or 14VDC@40mA
Triac 1.0 Amp @240VAC
Transmitter Power Supply (isolated)***

Fourth Output** (P41 only):
Relay 2.0 Amp @240VC (SPST)
SSR Drive 5VDC@30mA or 14VDC@40mA
Triac 1.0 Amp @240VAC
mA/VDC (Retransmission PV or SP) (isolated)
Transmitter Power Supply (isolated)***

Fifth Output:
mA/VDC (Retransmission PV or SP) (isolated)
Transmitter Power Supply (isolated)***
Serial Modbus RTU RS-232 or 485 (isolated)

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS

Operating Temperature: -10 to 50C
Storage Temperature: -40 to 60C
Humidity: 0-90% RH (non-condensing)
Insulation: 20M ohms Minimum (500VDC)
Dielectric Strength: 2000 VAC, 50/60 Hz, @ 1 minute
Vibration Resistance: 10-55 Hz, 10 m/s for 2 hours
Shock Resistance: 200m/s (20g)
Molding: Flame retardant polycarbonate
IP Panel Rating: IP50 (IP65 optional)
Dimension\Weight:
P41: 3.77" (H) x 3.77" (W) x 2.08" (D) \ 8.84 oz (250g)
96mm (H) x 96mm (W) x 53mm (D)
P91: 1.77" (H) x 1.77" (W) x 4.13" (D) \ 5.3 oz (150g)
45mm (H) x 45mm (W) x 105mm (D)

PROFILE SPECIFICATIONS

Number of Profiles: 9 (total of 288 segments)
Number of Segments per Profile:
Programs 1-4: up to 16 segments
Programs 5-7: up to 32 segments
Programs 8-9: up to 64 segments

Event Outputs: P41 maximum 3 / P91 maximum 2

Global Configurations:
SP value at profile start: Current PV, SP1 or Profile start SP
SP value at profile end: SP1, Profile Final SP or Off (outputs off)
Delayed Profile Start: set in hours/minutes
Power Fail/Recovery: Continue from last SP, Continue from current PV, Static Mode SP1, Static Mode Start SP or Off (outputs off)
Holdback Wait time: Maximum hold time before profile continues (Holdback is enabled / disabled per segment)
Event Input: Profile Run, Hold, Abort, Advance Segment, PID#2, Manual Mode and Off (outputs off)

Segment Configurations:
Segment Type: Ramp, Dwell, Jump or End Program
Time Unit: Dwell: hh.mm or mm.ss
Ramp: 0.0 - 900.0 F/minute or hour ramp rates
Ramp configurable in hh:mm or mm:ss
Time Duration: Set time duration for Dwell, Ramp or Ramp Rate
Start SP Value: (if configured Globally)
Target Ramp SP: any value in configured range.
Holdback: Set Holdback band in units (degrees F, C or units (xxx.x)
Set Holdback Action: Deviation Low, High or Band alarm or Off (not enabled)
States Assignment - Event Output & PID selection:
Select event output(s) and PID#1 or PID#2
Jump & Cycle: Select segment # to jump to and # of cycles
Final SP: Final SP for the end Segment (if configured Globally)

*When Configured as Control Output - Direct acting only
**Relay, SSR & Triac configurable as Alarm or Event output
***Isolated Transmitter Power Supply options: 20VDC @25mA, 12VDC @40mA or 5VDC @80mA

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Ordering Information

Enter a number into each box which corresponds to the specifications you want when ordering either a FDC-P41 or FDC-P91

	1	2	3	4	5	6	7	8
FDC-P41								
FDC-P91						0		

1› Power Input

4: 90-250VAC, 47-63 HZ
5: 11-26 VAC or VDC
9: Special Order

2› Signal Input*

1: Thermocouple: J, K, T, E, B, R, S, N, L, C, P
RTD: PT100 DIN & JIS
Voltage: 0-60mV
5: Voltage: 0-10VDC, 0-5VDC, 1-5VDC
6: mA: 0-20/4-20mA
9: Special: Consult Factory

3› Output 1

0: None
1: Relay 2A/240VAC (SPST)
2: SSR Drive 5VDC @30mA
3: 4-20/0-20mA linear, isolated, max load 500 ohm load
4: 1-5/0-5/0-10VDC linear, isolated, min 10K ohm load
6: Triac 1A/240VAC
C: SSR Drive 14VDC @40mA

4› Output 2

0: None
1: Relay 2A/240VAC (SPST)
2: SSR Drive 5VDC @30mA
3: 4-20/0-20mA linear, isolated, max load 500 ohm load
4: 1-5/0-5/0-10VDC linear, isolated, min 10K ohm load
6: Triac 1A/240VAC
7: Transmitter Power Supply 20VDC @25mA (Isolated)
8: Transmitter Power Supply 12VDC @40mA (Isolated)
A: Transmitter Power Supply 5VDC @80mA (Isolated)
C: SSR Drive 14VDC @40mA

5› Output 3

0: None
1: Relay 2A/240VAC (P41 SPDT / P91 SPST)
2: SSR Drive 5VDC @30mA
6: Triac 1A/240VAC
7: Transmitter Power Supply 20VDC @25mA (Isolated)
8: Transmitter Power Supply 12VDC @40mA (Isolated)
A: Transmitter Power Supply 5VDC @80mA (Isolated)
C: SSR Drive 14VDC @40mA

6› Output 4 (Fixed value for P91 order matrix = 0)

0: None
1: Relay 2A/240VAC (SPST)
2: SSR Drive 5VDC @30mA
3: Retransmission 4-20/0-20mA, isolated, max 500 ohm load
4: Retransmission 1-5/0-5/0-10VDC, isolated, min 10K ohm load
6: Triac 1A/240VAC
7: Transmitter Power Supply 20VDC @25mA (Isolated)
8: Transmitter Power Supply 12VDC @40mA (Isolated)
A: Transmitter Power Supply 5VDC @80mA (Isolated)
C: SSR Drive 14VDC @40mA

7› Output 5

0: None
3: Retransmission 4-20/0-20mA, isolated, max 500 ohm load
4: Retransmission 1-5/0-5/0-10VDC, isolated, min 10K ohm load
7: Transmitter Power Supply 20VDC @25mA (Isolated)
8: Transmitter Power Supply 12VDC @40mA (Isolated)
A: Transmitter Power Supply 5VDC @80mA (Isolated)
D: RS-485 Modbus RTU (isolated)
E: RS-232 Modbus RTU (isolated)

8› Options

0: Panel Mount IP50 standard
1: Panel Mount IP65 (Nema 4X)
2: DIN Rail Mount with IP50 (P91 only)
3: DIN Rail Mount with IP65 (P91 only, Nema 4X)

CE RoHS Compliant

*An Event input is standard; configurable for Profile Run, Profile Hold, Profile Abort, Profile Advance Segment, PID#2 or Off (all control outputs off)

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