FUTUREDESIGN CONTROLS

B42 Board Level PID Control

The FDC-B42 Board Level Profile Control is based on the P Series DIN controls and is typically used with the optional Serial Modbus communication to an external HMI used as an operator interface.

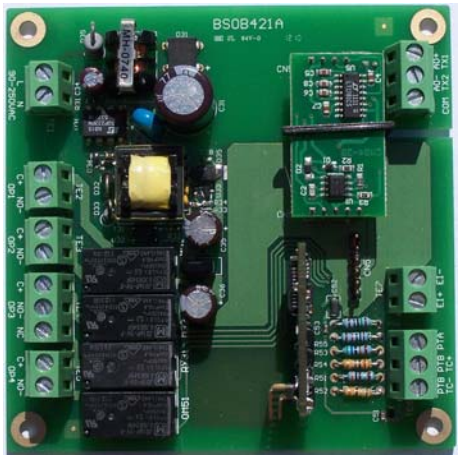
With up to 9 Profiles (up to 64 segments/profile) and 5 outputs the P Series set new standards for single loop Profile controls. The P Series and B42 are exceptionally easy to use, offer up to 9 Profiles, maximum of 4 control outputs with up to 3 configurable as events or alarms

Event input, optional PV/SP retransmission (15-bit), serial Modbus, 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 and B42 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 B42 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 B Series may act as a master setpoint control to client controllers. Serial communication is available on output 5.



B42 Features

- **9 Programs** (up to 64 segments/program)
- **Configurable Power Recovery**
- **Up to 5 Outputs** (2 PID max)
- **Event Outputs/Segment** (3 max)
- **Event Input** (multiple configurations)
- **Guaranteed Soak & Ramp/Step**
- **Holdback Wait Time by Segment**
- **Ramp Rate or Ramp Time**
- **PID Selections/Segment**
- **Security/Password**
- **Agency: UL Listed, CSA & CE**

B42 Board Level Control 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

Display Board (optional)
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**:
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)
Dimension\Weight: See Back Page

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: maximum 3

***Profile Global Configurations** (per profile):*

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)
Ramp Time Unit:	Ramp Time: hh.mm or mm.ss Ramp Rate: 0.0 - 900.0 F/minute or hour
Dwell Time Unit:	Dwell Time: hh.mm or mm.ss
Event Input:	Profile Run, Hold, Abort, Advance Segment, PID#2, Manual Mode & Off (outputs off)

***Segment Configurations** (per segment):*

Segment Type:	Ramp, Dwell, Jump or End Program
Time Duration:	Set time duration for Dwell, Ramp or Ramp Rate
Start SP Value:	Profile start SP (Global set)
Target Ramp	*SP:* any value in 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	Select event output or outputs
PID selection	Select 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:***

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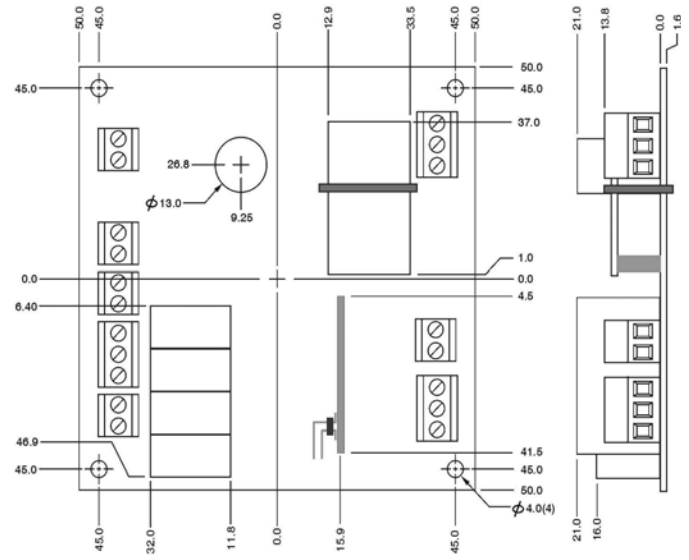
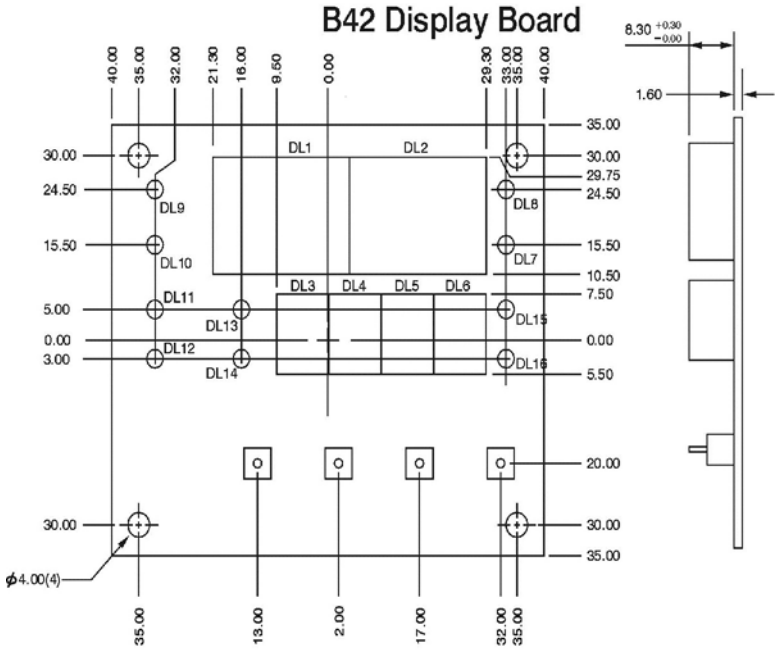
Dimension of B42 Control Board



B42 Display Board



Order Matrix:

B42 - □ - □ - □ - □ - □ - □ - □ - □ - □

1 2 3 4 5 6 7 8 9

1: Power Input:

4: 90-250VAC 47-63Hz
5: 11-26 VAC or VDC (consult factory for availability)

2: Signal Input:

1: Standard Input
Thermocouple: J, K, T, E, B, R, S, N, L, C, P
RTD: PT100 DIN and PT100 JIS
Voltage: 0-60mV
5: 0-10V, 0-1V, 0-5V, 1-5V
6: 0-20/4-20mA*
9: Special Order

3: Output 1:

0: None
1: Relay 2A/240VAC resistive [SPST]
2: SSR Drive 5V @ 30mA
3: 4-20/0-20mA isolated
4: 1-5/0-5VDC isolated
6: Triac 1A/240VAC, SSR
C: SSR Drive 14VDC @ 40mA
9: Special Order

4: Output 2:

0: None
1: Relay 2A/240VAC resistive [SPST]
2: SSR Drive 5VDC @ 30mA
3: 4-20/0-20mA isolated
4: 1-5V /0-5V/ 0-10 isolated
6: Triac 1A/240VAC, SSR
7: Transmitter power supply 20 VDC/ 25 mA isolated
8: Transmitter power supply 12VDC/40mA isolated
A: Transmitter power supply 5VDC/80mA isolated
C: SSR Drive 14VDC @ 40mA
9: Special Order

5: Output 3:

0: None
1: Relay 2A/240VAC resistive [SPST]
2: SSR Drive 5VDC @ 30mA
6: Triac 1A/240VAC, SSR
7: Transmitter power supply 20 VDC/ 25 mA isolated
8: Transmitter power supply 12VDC/40mA isolated
A: Transmitter power supply 5VDC/80mA isolated
C: SSR Drive 14VDC @ 40mA
9: Special Order

6: Output 4:

0: None
1: Relay 2A/240VAC resistive [SPST]
2: SSR Drive 5VDC @ 30mA
3: Retransmission 4-20/0-20mA isolated
4: Retransmission 1-5V /0-5V/ 0-10 isolated
6: Triac 1A/240VAC, SSR
7: Transmitter power supply 20 VDC/ 25 mA isolated
8: Transmitter power supply 12VDC/40mA isolated
A: Transmitter power supply 5VDC/80mA isolated
C: SSR Drive 14VDC @ 40mA
9: Special Order

7: Output 5:

0: None
3: Retransmission 4-20/0-20mA isolated
4: Retransmission 1-5V /0-5V/ 0-10 isolated
7: Transmitter power supply 20 VDC/ 25 mA 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: Display Board and Cable:

0: None
3: Display Board with 300mm connection cable
4: Display Board with 1000mm connection cable

9: Modbus Addressing: (if blank factory default is Modbus address #1)

CA: Modbus Comm Address #1
CB: Modbus Comm Address #2
CC: Modbus Comm Address #3

Note that field configuration of Comm address requires the optional Display

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