

FAIRCHILD 24XS SERIES M/P CONVERTERS

DC ANALOG INPUT UNIT

Operating Manual

Table 1. Estimated Full Range Pressure Adjusting Time (seconds) 12 VDC Supply							
		Mode of Operation					
		Full Step		Half Step			
		Full Range Adjustment Times (seconds)					
Regulator Model	Pressure Ranges			Min.	Max.	Min.	Max.
	psig	[BAR]	(kPa)				
10	.5-30	[.03-2]	(3-200)	25	25	26	48
	6-30	[0.4-2]	(40-200)	20	20	21	38
	3-27	[0.2-1.8]	(20-180)	17	20	19	38
	3-15	[0.2-1.0]	(20-100)	6	10	8	21
	3-9	[0.2-.6]	(20-60)	3	6	4	11
	9-15	[0.6-1]	(60-100)	3	5	4	11
16	Vacuum - 10			Outside of Specifications		26	43
80	.5-20	[.03-1.5]	(3-150)	10	14	11	28
	1-60	[.07-4]	(7-400)	10	14	11	28
	2-100	[.15-7]	(15-700)	13	13	8	17
81	0-2	[00-.15]	(0-15)	6	14	12	28
	0-5	[00-.35]	(0-35)	8	21	16	41
	.5-20	[.03-1.5]	(3-150)	10	14	11	28
	1-60	[.07-4]	(7-400)	10	14	11	28
	2-100	[.15-7]	(15-700)	13	13	8	17

Table 2. Estimated Full Range Pressure Adjusting Time (seconds) 24 VDC Supply							
		Mode of Operation					
		Full Step		Half Step			
		Full Range Adjustment Times (seconds)					
Regulator Model	Pressure Ranges			Min.	Max.	Min.	Max.
	psig	[BAR]	(kPa)				
10	.5-30	[.03-2]	(3-200)	13	25	18	48
	6-30	[0.4-2]	(40-200)	11	20	15	38
	3-27	[0.2-1.8]	(20-180)	10	20	14	38
	3-15	[0.2-1.0]	(20-100)	4	10	8	21
	3-9	[0.2-.6]	(20-60)	2	6	4	11
	9-15	[0.6-1]	(60-100)	2	5	4	11
16	Vacuum - 10			13	22	16	43
80	.5-20	[.03-1.5]	(3-150)	6	14	12	28
	1-60	[.07-4]	(7-400)	7	14	11	28
	2-100	[.15-7]	(15-700)	4	13	8	17
81	0-2	[00-.15]	(0-15)	6	14	12	28
	0-5	[00-.35]	(0-35)	8	21	16	41
	.5-20	[.03-1.5]	(3-150)	6	14	12	28
	1-60	[.07-4]	(7-400)	7	14	11	28
	2-100	[.15-7]	(15-700)	4	13	8	17

GENERAL INFORMATION

The DC Analog Input unit allows incremental adjustment of regulator output pressure and provides for various adjustment times for full range operation.

The DC Analog Input unit contains an Amplifier and Translator Board which allows for operation with a 4-20 mA or 1-5 VDC analog input signal. The unit converts the signal into control logic which drives a stepper motor.

ADJUSTMENTS

NOTE: Always put the unit in half-step mode and set deadband before calibrating.

The following adjustments are provided:

- Full/Half Step Mode
- Forward/Reverse Action
- Calibration - Zero and Span
- Motor Speed Adjustment (CLK)
- Deadband Adjustment (DB)
- Limit Switch Adjustment

Full/Half Step Mode Adjustment

NOTE: Remove power from unit when changing SW1-2 from half step mode to full step mode: Switching from half step mode to full step mode when the power is on can result in motor operation at 1/2 its torque capability.

1. Turn the **Full/Half Step Switch (SW1-2)** to the **Off/Open** position for half step operation. Turn the switch to the **On/Closed** position for full step operation.

Forward Acting Mode Adjustment

2. Connect the **Feedback Potentiometer** connector to **J3** so that the **green wire** is closest to the terminal block. For more information, see Figure 1. "DC Analog Control Board Connections" on page 3.

• Forward Acting Calibration - Zero

3. Turn the **Forward/Reverse Switch (SW1-1)** to the **Off/Open** position.
4. Attach a suitable gage to the pneumatic output of the DC Analog Input unit.
5. Apply a minimum input signal to **terminals 1(+)** and **2(-)** for current signal and **terminals 3(+)** and **2(-)** for voltage signal. For more information, see Figure 1. "DC Analog Control Board Connections" on page 3.
6. Adjust the **Zero Potentiometer** to a desired minimum output pressure.

• Calibration Span

7. Apply a maximum input signal to the appropriate terminals on **Terminal Block (TB1)**.
8. Adjust the **Span Potentiometer** for maximum output pressure.

9. Reapply a minimum input signal to the appropriate terminals and adjust the **Zero Potentiometer** for minimum output pressure.
10. Reapply a maximum input signal to the appropriate terminals and adjust the **Span Potentiometer** for maximum output pressure.
11. Work back and forth in this manner until the unit achieves the desired pressure range.

Reverse Acting Mode Adjustment

2. Connect the **Feedback Potentiometer** Connector to **J3** so that the **yellow wire** is closest to the terminal block. For more information, see Figure 1. "DC Analog Control Board Connections" on page 3.

• Reverse Acting Calibration - Zero

3. Turn the **Forward/Reverse Switch (SW1-1)** to the **On/Closed** position.
4. Attach a suitable gage to the pneumatic output of the DC Analog Input unit.
5. Apply a minimum input signal to **terminals 1(+)** and **2(-)** for current signal and **terminals 3(+)** and **2(-)** for voltage signal. For more information, see Figure 1. "DC Analog Control Board Connections" on page 3.
6. Adjust the **Zero Potentiometer** to a desired maximum output pressure.

• Calibration Span

7. Apply a maximum input signal to the appropriate terminals on **Terminal Block (TB1)**.
8. Adjust the **Span Potentiometer** for minimum output pressure.
9. Reapply a minimum input signal to the appropriate terminals and adjust the **Zero Potentiometer** for maximum output pressure.
10. Reapply a maximum input signal to the appropriate terminals and adjust the **Span Potentiometer** for minimum output pressure.
11. Work back and forth in this manner until the unit achieves the desired pressure range.

Additional Adjustments

• Motor Speed Adjustment

1. Vary the motor speed by adjusting the **CLK** control.
2. Turn the **CLK** control clockwise to increase motor speed and counterclockwise to decrease the motor speed. For more information, see Figure 1. “DC Analog Control Board Connections” below.

• Dead Band Adjustment

1. Turn **DB** adjust counterclockwise until unit begins to oscillate.

2. Turn **DB** adjust clockwise until oscillation stops. This is the minimal deadband setting, (least amount of error).

NOTE: The unit MUST BE recalibrated if the deadband was adjusted after calibration.

• Limit Switch Adjustment

1. Adjust the **Low** and **High Limit Switches** to reach limits of 1/2 psig above maximum calibrated value and 1/2 psig below minimum calibrated value. For more information, see Figure 1. “DC Analog Control Board Connections” below.

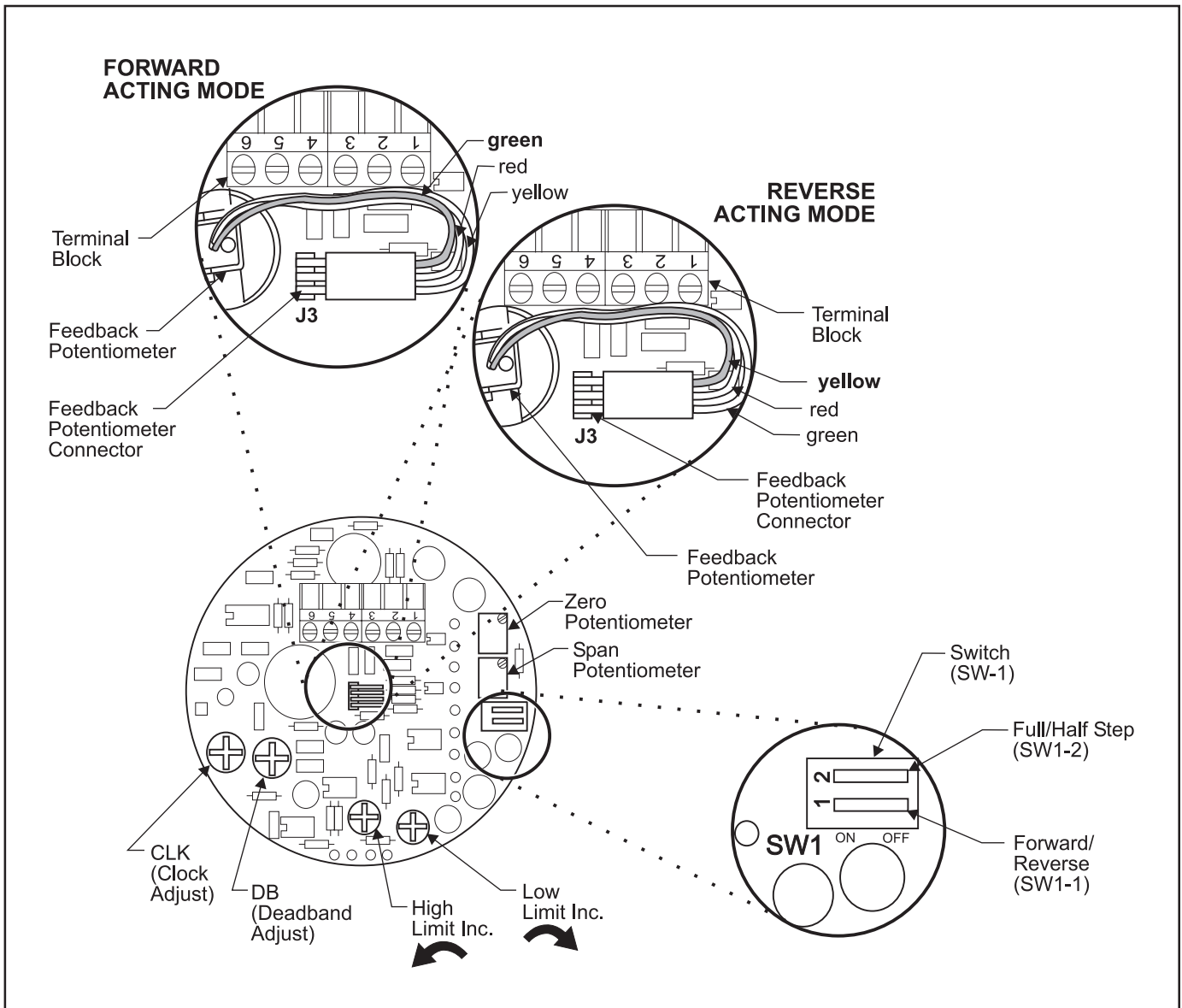


Figure 1. DC Analog Control Board Components.

TROUBLE-SHOOTING

Table 3. Trouble-Shooting	
Problem	Solution
Leakage	Check Body Screw tightness. Check Diaphragm.
High Bleed	Check Relief Pintle and Relief Seat for damage or contamination.
Difficult to adjust	Check Adjusting Screw and Ball lubrication.

MAINTENANCE

Table 4. For replacement of all elastomers and internal filters install the following Service Kits:	
Model	Service Kits
Model 10	19495-1
Model 16	19494-1
Model 80	15704-1, -2, -3
Model 81	15705-1, -2

**WARNING: Do Not attempt to repair circuit boards.
Unauthorized repair will void warranty.**

LEGAL NOTICE:

The information set forth in the foregoing Installation, Operation and Maintenance Instructions shall not be modified or amended in any respect without prior written consent of Fairchild Industrial Products Company. In addition, the information set forth herein shall be furnished with each product sold incorporating Fairchild's unit as a component thereof.