Fusion to Fluidwell Preset Conversion

Before You Begin

Check to see that you received all the parts you'll need for the conversion. You should have received:

1 – Fluidwell N-Series batch controller.
1 – SSU-PAM-1 encapsulated relay black, white, blue, orange, yellow wires and red wires.
1 – Timer relay.
Bag with mounting clips, gasket and terminal blocks.
Conversion instructions (this document).
ICS Preset operating manual.
Wiring schematics.

Tools to have on hand:

- Small, flat head screwdriver.
- Phillips or flat head screwdriver for old screw terminals.
- Wire strippers to repair old, frayed wires.
- Side cutters to remove cable ties.
- Replacement cable ties.

Note: These instructions and illustrations are representative of a typical conversion. There are many different wiring scenarios depending on the original design and/or subsequent field modifications. Wire colors may be different in your panel, and certain steps may not apply to your conversion.

Section 1: AC Power Wiring

1.1: Open the preset door and turn the circuit breaker to OFF.

Find the clear package labeled "SSU-PAM-1" that was shipped with the Fluidwell controller. Open the package and using the double-sided tape, adhere the back of the relay to the inside of the enclosure door next to the old Fusion. (Figure 1.1)

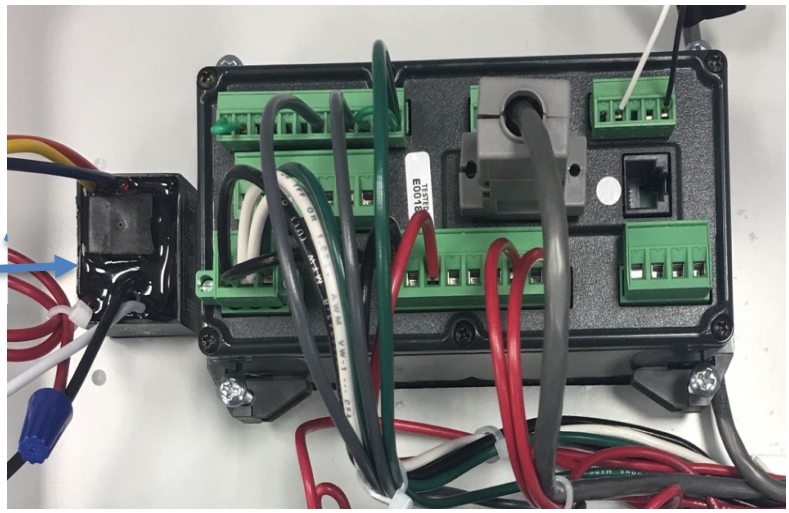

Figure 1.1

1.2: Remove the bag of parts from the Fluidwell box. Pull all the green and black terminal blocks out of the bag. Find the black terminal block labeled “L N FE”. (Figure 1.2)

Figure 1.2

1.3: Pull the bottom left terminal block out of the Fusion. (Figure 1.3) Disconnect the two black (AC Power) wires from the terminal block and connect them to Fluidwell terminal **L**.

Figure 1.3

1.4: Disconnect the white (Neutral) wire from the Fusion terminal block and connect it to Fluidwell terminal **N**. Then connect the white (Neutral) wire from the relay (SSU-PAM-1) to the same terminal **N**.

1.5: Disconnect the green (Ground) wire from the Fusion terminal block and connect it to Fluidwell terminal **FE.**

1.6: Connect the black (AC Power) wire from the relay (SSU-PAM-1) to the top side of the start button light module (Figure 1.6).

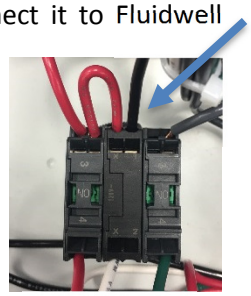

Figure 1.6

Section 2: Internal Control Relays

2.1: Remove the bottom middle terminal block from the Fusion (Figure 2.1A). Find the black terminal block for the Fluidwell labeled “NO2 COM NC2”. (Figure 2.1B)

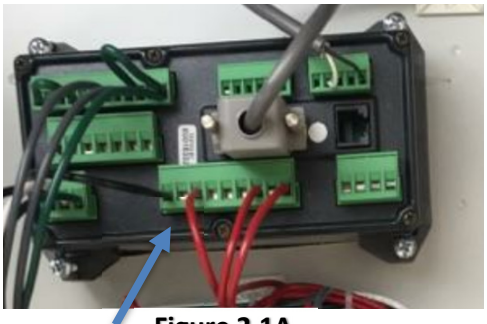

Figure 2.1A

Figure 2.1B

2.2: Disconnect the black wire in the far-left terminal on the Fusion terminal block, and move it to Fluidwell terminal **COM 2.** (If you find two black wires in the far left terminal, disregard the wire NOT connected to terminal **L** from **Step 1.3** above. It is no longer needed.)

2.3: Disconnect the red wire in the third terminal from the left, on the Fusion terminal block, and connect it to Fluidwell terminal **NC 2.**

Section 3: Pump Delay Timer Relay (Optional)

3.1: Open the timer relay that was sent with the Fluidwell. Place the timer on a section of open DIN rail (mounting channel). Attach it by sliding the top side of the timer on the DIN rail. (Figure 3.1A) Using a screw driver pull the red tab on the bottom of the timer and push the timer onto the DIN rail. (Figure 3.1B) When the timer is flat on the DIN rail release the red tab. You should not be able to pull the timer off the DIN rail when it is attached correctly.

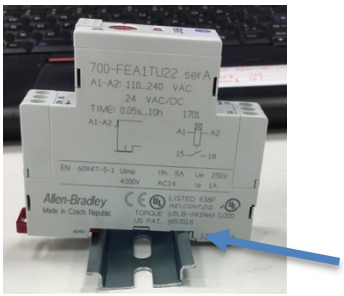

Figure 3.1A

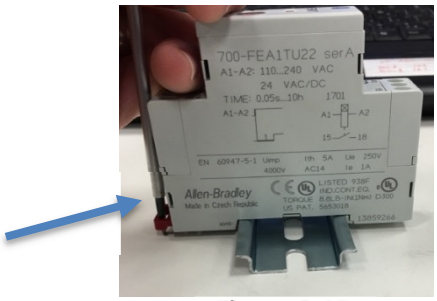

Figure 3.1B

3.2: Disconnect the last wire on the terminal block from the far-right terminal. Connect it to the timer relay on terminal 18.

3.3: Connect 120 VAC to terminal 15 on the timer. Connect AC Common to terminal A2 on the timer. If possible, use the auxiliary 120 and ACC terminal blocks on near the incoming power. (Figure 3.3) **Do not jump from the incoming power supplying the circuit breaker!**

3.4: Connect 120 VAC to terminal 12 on the Master Control Relay (MCR). Connect a Red Wire to terminal 8 on the MCR and connect it to terminal A1 on the timing relay.

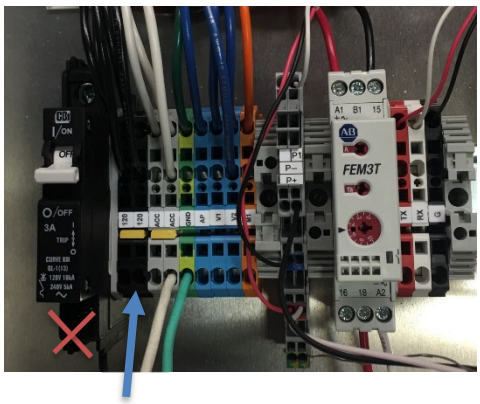

Figure 3.3

Section 4: External Control Inputs

4.1: Locate the top left terminal block on the Fusion. (Figure 4.1) Ignoring the jumpers landed only on the terminal block, follow any other wires (on this block) to their opposite ends and carefully disconnect them, being careful not to displace any other wires landed on the same spot. The terminal block and wires may be removed or left plugged in to the Fusion.

Figure 4.1

4.2: Find the green terminal block from the Fluidwell that is labeled “8 9 10 11 12”. (Figure 4.2) Connect the blue wire from the new relay (SSU-PAM-1) to terminal 8 on the Fluidwell terminal block. Connect the orange wire from the relay to terminal 9 on the Fluidwell terminal block. Connect the yellow wire from the relay to terminal 10 on the Fluidwell terminal block. The red (DC Power) wire on relay SSU-PAM-1 is not used. Use a wire nut and electrical tape to prevent the red wire from causing a short.

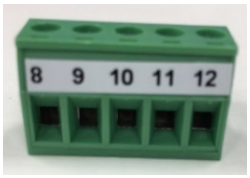

Figure 4.2

Section 5: Meter Inputs

5.1: Remove the top right terminal block of the Fusion. (Figure 5.1)

5.2: Find the Fluidwell terminal block labeled 27-32. (Figure 5.2)

Figure 5.1

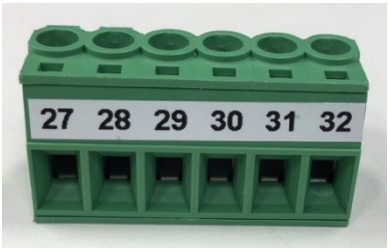

Figure 5.2

5.3: See page 6 of these instructions to determine the correct meter input wiring scheme. It will vary per the type of meter being used. If your panel does not have terminal blocks for field terminations that correspond to the instructions, you can land the signal wires directly to the Fluidwell terminals (29,30, and 32) as indicated.

Section 6: Printer (Optional)

6.1: If you have a printer, disconnect the printer cable and connector from the Fusion. (Figure 6.1)

Figure 6.1

6.2: Find the Fluidwell terminal block labeled “35 36 37”. (Figure 6.2)

Figure 6.2

6.3: Cut the connector off the end of the cable and strip the cable back. Connect the black wire to Fluidwell terminal 35, connect the red wire to terminal 36 and connect the white wire to terminal 37.

Section 7: Installation

7.1: Loosen the mounting screws to remove the mounting clips holding the Fusion preset in place (Figure 7.1). Pull the Fusion preset out through the front of the enclosure door.

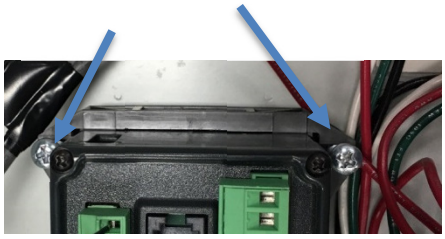

Figure 7.1

7.2: Remove the 4 mounting clips and 8 mounting screws from the Fluidwell bag of parts. Screw the mounting screws into the mounting clips so they are flush with the back of the clips. (Figure 7.2)

Figure 7.2

7.3: Place the rectangular gasket from the parts bag around the Fluidwell and insert it into the hole in the door. Install mounting clips into the slots on the left and right side of the Fluidwell. Tighten the screws far enough to hold the Fluidwell in place and install the remaining mounting clips to the top and bottom of the unit. Tighten the mounting screws evenly moving clockwise around the Fluidwell until all the screws are snug. Do not overtighten the mounting screws or you might break the mounting clips. Make sure the gasket is in place and makes a good seal around the Fluidwell.

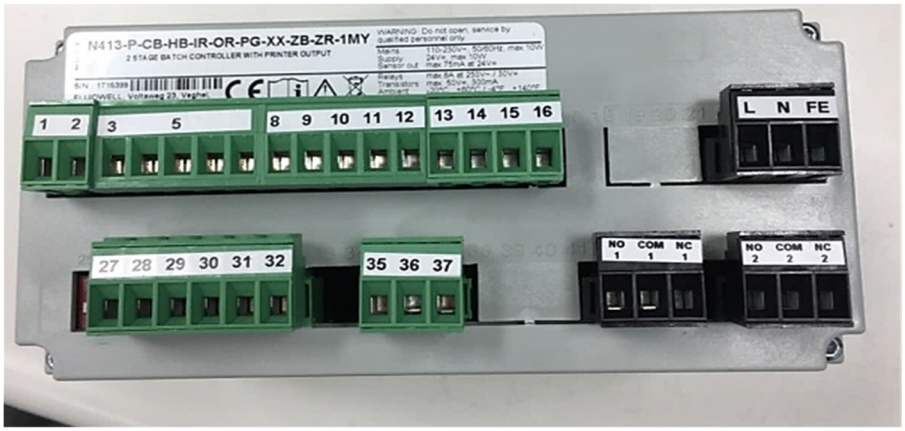

Figure 7.4

7.4: Align each terminal block and push in to seat them securely in the Fluidwell. Refer to the raised numbers on the back of the Fluidwell to ensure proper alignment of the terminal blocks. (Figure 7.4)

7.5: Turn the circuit breaker to the **ON** position and check to see that the Fluidwell powers up. If it doesn’t, refer to Steps 1.3 through 1.6. If the Fluidwell powers up normally, your conversion is complete. Refer to the “ICS Preset Operating Instructions” manual to learn how to use your new Fluidwell.

Typical Meter Input/Wiring Combinations

Meter	Signal Type	Signal Wiring Meter to Field Term Block (N413-P)
Micro Motion Mass Flow (2700 Transmitter)	Active	Freq+ to P+ (29) Freq– to P1 (30)
Endress+Hauser Mass Flow (84F Transmitter)	Active	24+ to P+ (29) 25– to P1 (30)
Endress+Hauser Mag Meter (50/53P Transmitter)	Active	24+ to P+ (29) 25– to P1 (30)
TCS Meter (10:1 Pulser)	Reed LP	Black & Black to P1 (30) & P – (32) No Polarity
TCS Meter (100:1 Pulser)	PNP	Red to P+ (29), Black to P1 (30), White to P – (32), Green to GND
Ball Meter (Oil Gear)	NPN	Red to P+ (29), White to P1 (30), Black to P – (32)
Hoffer (Turbine) Meter -With Signal Conditioner*	NPN	To P1N (30) & P- (32) No Polarity

*Murray Equipment recommends using a signal conditioner for all turbine meters with the Fluidwell N413-P (*Part # DUR 48160-400*). If your panel does not include one, call MEI for assistance.

Call Murray Equipment for other types of meters.