

PFC Adjustment Instructions

The threshold setting and full output setting are factory adjusted for your specific valve coil. Additional field adjustments are recommended to tune each machine function to the desired operation.

CW rotation increase the output.
CCW rotation decrease the output.

Some interaction occurs between adjustments of the trim pots and some re-adjustment of the trim pots may be required to achieve the optimum setting. The trim pots are multi-turn devices and will require several turns before an appreciable change in response is observed.

Adjustment Priority

1. **Threshold (Thres):** Deflect handle slowly about 5° from off to adjust where the LED turns on then adjust the threshold trim pot CW to increase the start speed of the function you are controlling. To obtain a slower speed at this position turn the threshold trim pot CCW until the desired speed is observed.
2. **Full Output Adjust Trim pot (Max. 1):** With the handle fully deflected adjust the Max. 1 trim pot CW until the desired speed is achieved. **Caution:** Do not over adjust. To insure that the full speed adjustment is not saturated, back the handle off from full travel 5-10°, a change in performance should be observed. If no change is noticed Max. 1 is saturated (over adjusted). Turn Max. 1 CCW 5 turns and re-check for a response change just off the end of the travel again. Re-check start speed and re-adjust Thres again to the desired start speed. A correctly adjusted controller will start the function moving when the handle is initially deflected and reach full speed just at the end of travel.

Option Adjustments

3. **Dual Full Output Adjust (Max. 2):** An independent adjustment of the full output in each direction can be achieved with this option. Max. 1 adjusts the output at full handle travel in "A" direction. Max. 2 adjusts the output at full handle travel in "B" direction. Follow the instructions for Max. 1 adjustment above when adjusting Max. 1 for "A" and Max. 2 for "B" direction.
4. **Hi-Lo Range Adjustment (HLRA):** Two high speed settings can be achieved when the handle is fully deflected. Full proportionality is maintained between the threshold setting and either the low range or the high range full output setting. The selection of each range is achieved by either connecting or disconnecting the supply voltage to the "H" terminal. When the supply voltage is applied to the "H" terminal the circuit selects high range. When power is removed from "H" terminal the circuit defaults to low range.

High Range Adjustment HI (Max. 1): Apply power to the "H" terminal and fully deflect the handle. Begin adjustment by following Adjustment Priority (2) procedures and adjust Max. 1 trim pot, which is now your high range trim pot. Whenever source power is connected to the "H" terminal maximum output will be achieved for this function.

Low Range Adjustment LO (Hi/Lo): When the source voltage is disconnected from "H" by an external contact or other means the circuit will default to low range. With "H" disconnected deflect the handle fully and adjust the trim pot low range to the desired low speed output. Again begin this adjustment by following the procedures outlined in Adjustment Priority (2) for Max. 1 trim pot. With handle fully deflected re-connect the source power to the "H" terminal and then disconnect it again. A noticeable change in full output speed should be observed.

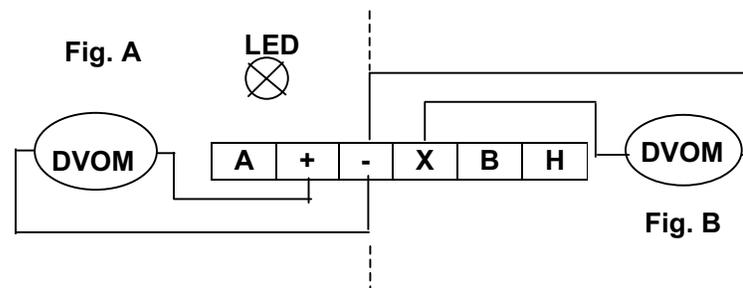
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5. **Ramp:** The ramp option compensates for jerky handle movements by providing a smooth response. Turning the trim pot Ramp CW increases the ramp time and lessens the response time to handle movement. CCW adjustment decreases the ramp time and increases the response time to handle movement. The standard ramp time is adjustable from 0-2.5 seconds. 0 to 5 seconds adjustment range is available on request. Ramping occurs between the threshold setting and the full output setting. If the handle is returned to off the function will stop abruptly.
6. **Dual Threshold Adjust DTA T2:** Consult factory for details. Follow Max. 1 threshold adjustment procedures. This option requires (1) additional micro switch.
7. **Dual Ramp R2:** Allows the user to independently adjust the ramp time for each direction of a particular function. Consult factory for details.

PFC Electronics Trouble Shooting Instructions

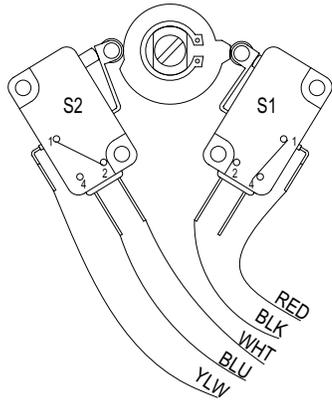
Most models the controller card is equipped with an LED as a diagnostic aid. Deflecting controller handle in either direction should cause the LED to light.

PROBLEM	PROBABLE CAUSE	ITEM TO CHECK
1. Function inoperative when controller is operated.	1.1 No power to the controller.	1.1.1 LED will not light (if so equipped) 1.1.2 Check fuse 1.1.3 Check for supply voltage with VM at (+) and (-) terminals. Fig. A 1.1.4 Check for disconnected plugs and connectors at controller.
	1.2 Defective on/off switch on controller.	1.2.1 With VM Check supply from (-) terminal to (x) terminal. Deflect handle, voltage should be present. If not, replace contact. Fig. B
	1.3 Controller output shorted to ground. LED will not light.	1.3.1 Locate shorted coil or wire and replace or repair wire. 1.3.2 Replace fuse if applicable. 1.3.3 If voltage is present at the (x) terminal and LED fails to light replace the circuit board. 1.3.4 Note: If you have more than one identical electronic amplifier in the system, re-connect one in place of the other to confirm your diagnosis at this time.
	1.4 Open circuit between controller and coil.	1.4.1 LED will light, but no change in brilliancy is noticed when handle is deflected in both directions. 1.4.2 Re-connecting of an adjacent identical controller to this function, if available. 1.4.3 If function is still inoperative, look for the broken wire, open coil or lose connection at valve or controller.
	1.5 Trim pots out of adjustment.	1.5.1 Refer to PFC Adjustment Instructions. 1.5.2 Turn all trim pots CCW 10-15 turns. You should hear a click. Then follow PFC Adjustment Instructions.
2. Function Jerks on turn on.	2.1 Threshold trim pot adjustment too high.	2.1.1 Turn threshold trim pot CCW several turns. Refer to PFC Adjustment Instructions.
3. Function speed shows small proportional change over handle range.	3.1 Trim pots out of adjustment.	3.1.1 Full output trim pots possible saturated (set to high). Fully deflect handle and then back off 10 degrees. Change in function output should be noted. If not, turn trim pot CCW several turns and observe. Refer to PFC Adjustment Instructions.
4. High-Low range option will not transfer between Low and High settings.	4.1 No power at "H" terminal	4.1.1 Check for source voltage at "H" terminal in the high range mode. Check that the voltage is no longer present when in low range mode. If no voltage is present check wiring and integrity of switching device responsible for controlling this function. 4.1.2 Check if Hi and Lo are adjusted properly. See PFC Adjustment Instructions for HLRA.
5. Ramp ineffective or function response is too slow.	5.1 Trim pot out of adjustment.	5.1.1 Turn Ramp trim pot CW to increase ramp time and reduce the functions response time to handle movement. 5.1.2 Turn Ramp CCW to reduce ramp time and increase the functions response time to handle movement.

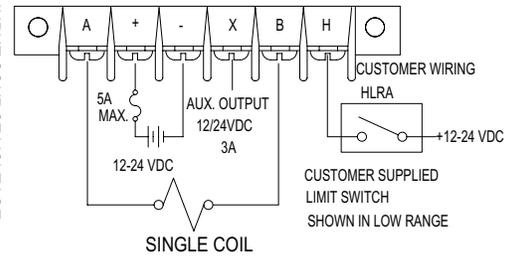
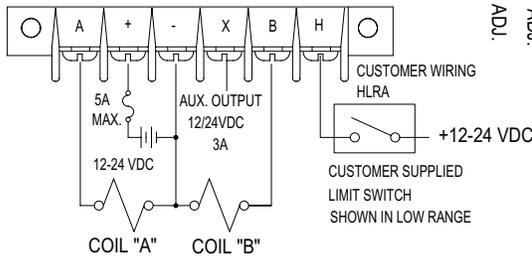
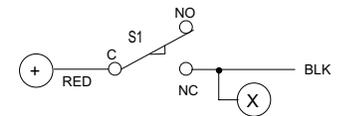
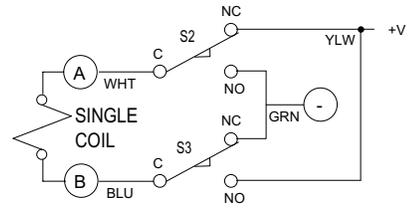
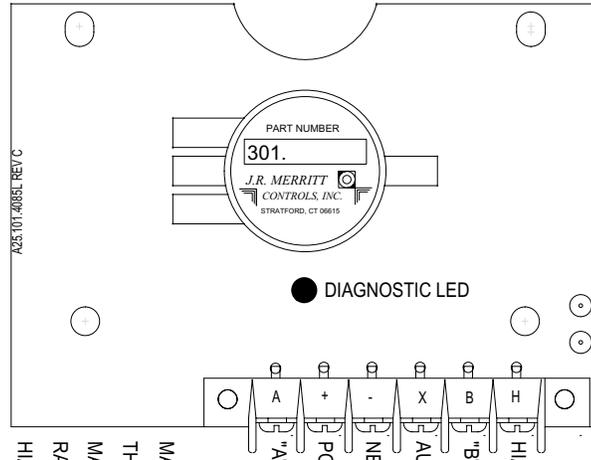
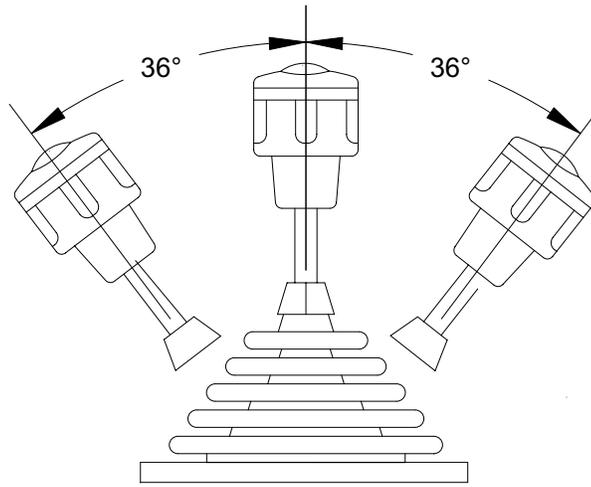
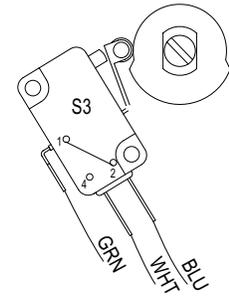


PFC Electronics Hook Up and Wiring Instructions

DUAL COIL MICRO WIRING AND CAM



SINGLE COIL ADDITIONAL CAM & MICRO REQUIRED



IMPORTANT: See PFC Adjustment Instructions for trim pot and adjustment priority.

THRES = Threshold

MAX.1 = Full Output Adjustment

MAX.2 = Dual Full Output Adjustment

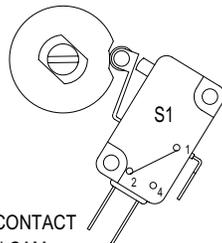
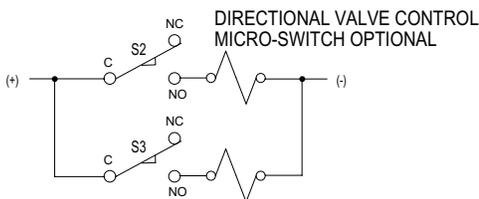
HI = Max.1 is Re-designated HI For High/Low range adjust option

HI/LO = Low Range Adjustment for High/Low range option

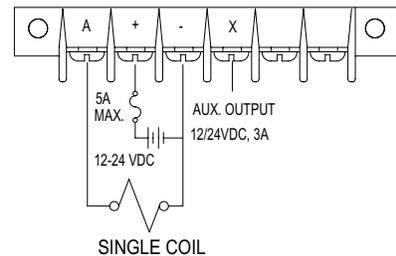
RAMP = Ramp Response Time Adjustment

5A FUSES ARE CUSTOMER SUPPLIED

FLOW CONTROL



FLOW CONTACT
OFF/ON CAM
SHOWN WITH HANDLE IN "A" DIR.



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