

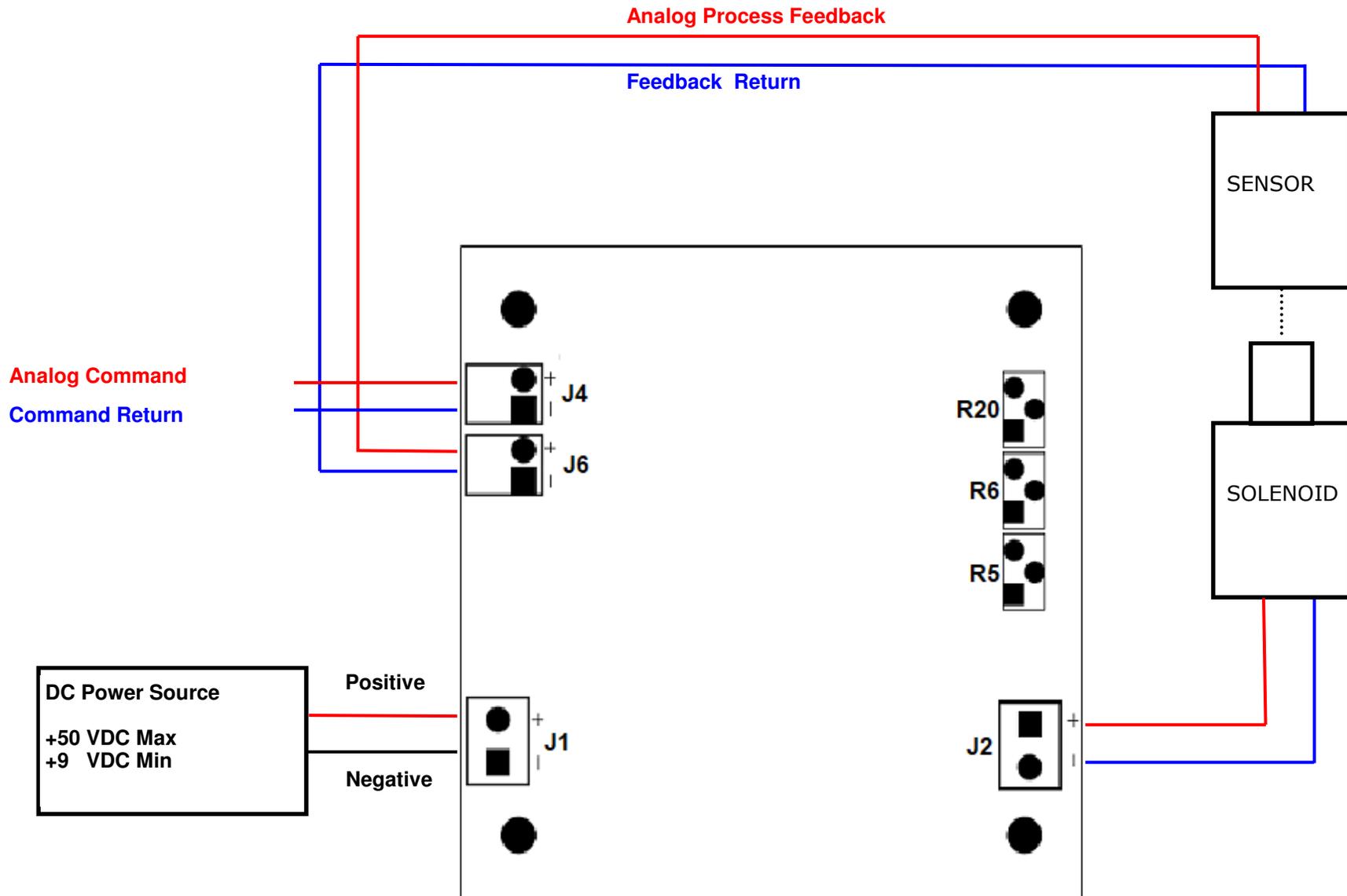
CONNECTION	DESCRIPTION
J1 +	This pin should be connected to the positive output of the power source. The maximum applied voltage should not exceed +50 VDC.
J1 -	This pin should be connected to the negative output of the power source.
J4 +	The analog command of the Solenoid should be connected to this pin. The range of the input signal is 0 to +5 VDC
J4 -	This pin may be used as the return for command signal.
J6 +	The process feedback should be connected to this pin. The range of the input signal is 0 to +5 VDC.
J6 -	This pin may be used as the return for position feedback.
J2 +	This pin should be connected to one terminal of the Solenoid.
J2 -	This pin should be connected to the other terminal of the Solenoid.

Closed Loop Solenoid Process Control Module Pin Assignment and Description



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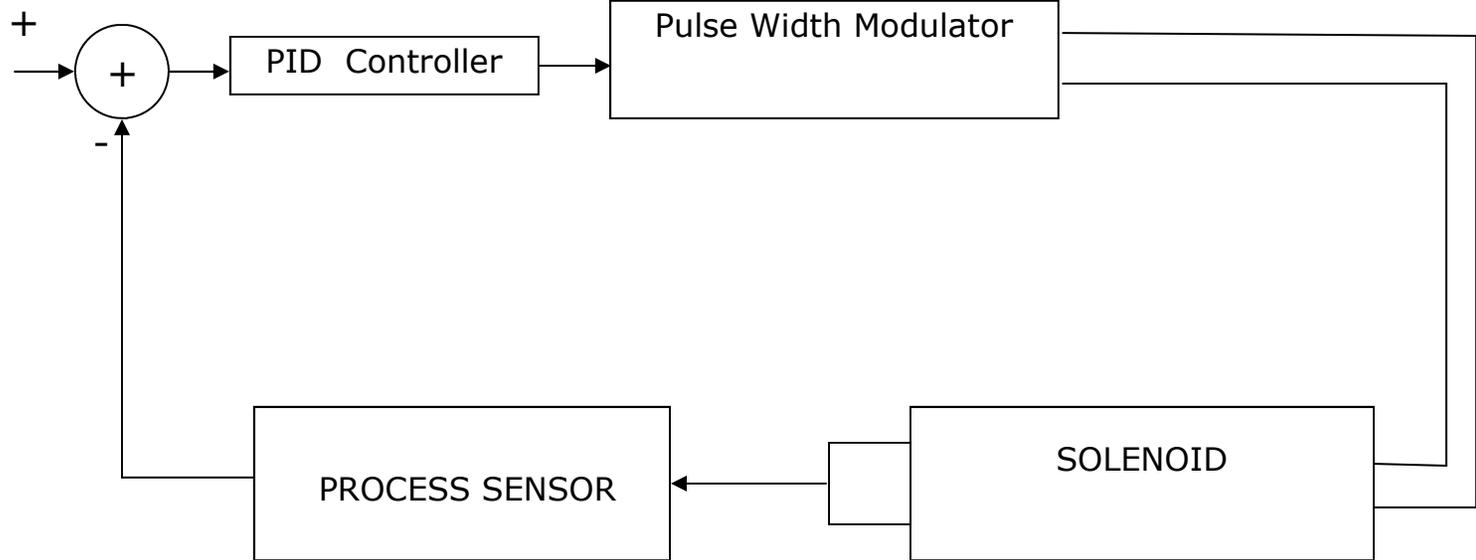
CLSP-01 Wiring Diagram for a Solenoid with External Process Feedback



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Command
0 - +5 VDC
0 - +10 VDC
4 ma - 20 ma
Quadrature Encoder
Step and Direction



Feedback
0 - +5 VDC
0 - +10 VDC
4 ma - 20 ma
Quadrature Encoder

Closed Loop Solenoid Process Control Module Block Diagram



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Warning:

Handling this electronic module shall be performed in a static safe environment while a ground strap is used. Damages arising due to not observing the static pre-cautions shall void the limited ninety-day warranty.

Closed Loop Solenoid Process Control Module Adjustment Procedure:

The R5 potentiometer adjusts the proportional (P) term of the PID filter.

The R6 potentiometer adjusts the derivative (D) term of the PID filter.

The R20 potentiometer adjusts the integral (I) term of the PID filter.

The operation must be equipped with a safety switch to shut down the system in the case of an erratic behavior. The following tuning must be done by a qualified technical personnel.

1. Turn off the power to the solenoid control module.
2. Make all the necessary connections.
3. Turn the R5 potentiometer fully CCW. This position sets the proportional (P) gain to minimum value.
4. Set the R6 potentiometer in the middle position.
5. Turn the R20 potentiometer fully CCW. This position sets the integral (I) gain to minimum value.
6. Monitor the voltage between J6+ and J4+ using a DC voltmeter. This is the error signal between the command and the process.
7. Turn on the power to the solenoid control module.
8. Increase the command signal slightly and adjust the R5 potentiometer slightly to minimize the voltage between J6+ and J4+. Make sure the system is stable.
9. R6 potentiometer may need to be adjusted to increase the stability of the system.
10. Repeat the above two steps for optimum performance.
11. The R20 is used to decrease the error. Turning the R20 CW may decrease the stability of the system.



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