

* Application Note AN-178 *

WIRE CONNECTIONS FOR LP-24 or VLP-24 and 599 SENSOR TO FC-24 CONTROLLER

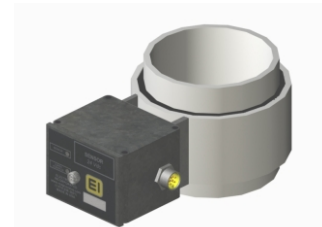
Note: This combination of valve, sensor and control is useful for steel grit flow rate control in place of the model 500-24 MagnaValve. The 599-24 sensor is placed over a rubber hose and is not subject to erosion by the abrasive grit. The VLP or LP MagnaValve, if operated at less than 80% maximum capacity, will self protect itself with a blanket of shot that remains over the pole pieces. If the flow rate is near 100% capacity then the grit, traveling at a higher velocity over the uncovered pole pieces, will eventually erode the internal valve parts. The valve has a two year repair or replacement warranty, exclusive of consequential damages, (i.e. We do not re-imburse for costs of removal or re-installation).

NOTE: The Controller's Full Scale display must be adjusted to match the performance of the 599 sensor. For example: if the sensor is scaled to give 5.0Vdc output at 500Kg flow then set the full scale range of the FC-24 control to 500.



1. WHITE - not used
2. RED - 24 Vdc power from # 19
3. GREEN - not used
4. ORANGE - 0-10 Vdc input from # 8
5. BLACK - 0Vdc common from # 20
6. BLUE - 24 Vdc enable input from #9

Remote setpoint terminal #2 can come from customer 0-10 Vdc signal. Customer enable signal 24 Vdc goes first to the FC-24 Control terminal #4 . It is then processed internally for re-transmission at terminal #9 to the LP-24 MagnaValve. This allows the FC-24 to override the enable function for technician maintenance. See FC-24 Instruction Manual Im0079 for additional information



Model 599-24 sensor mounted below LP-24 or VLP-24 MagnaValve

Wiring Connections

1	0 Vdc, Common	0 Vdc, Common	11
2	Remote Setpoint (0-10 Vdc)	Alarm Reset (24 Vdc)	12
3	0 Vdc, Common	Alarm High Relay Contact	13
4	Enable Input (24 Vdc)	Alarm Common Relay Contact	14
5	0 Vdc, Common	Alarm Low Relay Contact	15
6	Process Input (0-10 Vdc)	Flow "OK" Relay Contact	16
7	Process Input (0- 0.5 Vac)	0 Vdc, Common	17
8	Servo Output (0-10 Vdc)	Recorder Output (0-10 Vdc)	18
9	Enable Output (24 Vdc)	24 Vdc Power	19
10	0 Vdc, Common	0 Vdc, Common	20

Note: Connect power supply directly to the MagnaValve first and then run power back to the control using minimum 16 AWG wire size to prevent (high current) voltage drops. Power supply should be regulated and rated at 50VA per valve.

56790 Magnetic Drive Mishawaka, In. USA 46545 (574) 256-5001

ELECTRONICS INCORPORATED

Preliminary draft

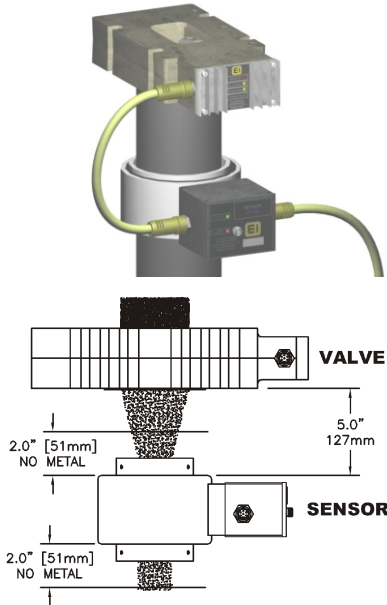
www.magnavalve.com

SHOT PEENING TECHNOLOGY

AN178.cdr August 12, 2004

* Application Note AN-178 *

Misc notes: LP-24 or VLP-24 and 599 SENSOR TO FC-24 CONTROLLER



General arrangement drawing showing LP MagnaValve mounted above model 599-24 sensor. The cable between the valve and sensor is supplied pre-connected. Connections from the sensor to the FC-24 cable are made by secondary cable (supplied six foot length).

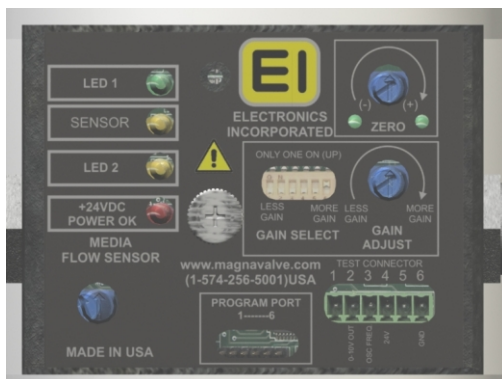
NOTE: the transition from the LP MagnaValve to your rubber hose should be smooth (i.e. with an angle or funnel shaped) to allow grit to enter the hose easily, otherwise you may not obtain 500 Kg/minute flow capability.

NOTE: The 599 sensor is a metal detector and will sense metal (steel shot or grit) inside the sensor. The sensor is also affected by external metal above and/or below which may cause an offset voltage when no shot or grit is inside the sensor. After all of the installation construction is completed you may have to re-adjust the zero output voltage. See the image below for location of "zero" adjustment.

NOTE : This is a special adaptation of the MagnaValve, flow sensor and FC-24 Controller. It is used in applications where abrasive grit would damage the 500-24 MagnaValve with its built-in flow sensor. The distance of the sensor to the MagnaValve will affect the sensor signal and therefore final calibration must always be done by customer in-situ. Moving the sensor closer to the valve will increase the signal. Moving the sensor further away from the valve will decrease its signal. The distance used for calibration at the factory is 127mm. If you use a different distance between the MagnaValve and the flow sensor you may have to re-span the sensor output signal to correspond to the new settings (i.e. produce 5.0Vdc output signal for 500 Kg/min flow rate)

Once the valve and sensor have been installed and zero is adjusted the output signal 0-5Vdc will be proportional to the shot or grit flow rate with an accuracy of $\pm 2\%$ of full scale range (typically 2% of 500 Kg/minute full scale range)

The sensor linearity has been factory adjusted (typically for 500Kg/minute LG-80 grit) and should not require re-adjustment. For additional information refer to Instruction Manual Im0089.



Front view with cover plate removed



Front view with cover plate installed

56790 Magnetic Drive Mishawaka, In. USA 46545 (574) 256-5001

ELECTRONICS INCORPORATED

SHOT PEENING TECHNOLOGY

Preliminary draft rev a

AN178.cdr August 12, 2004

www.magnavalve.com