

## CM-030

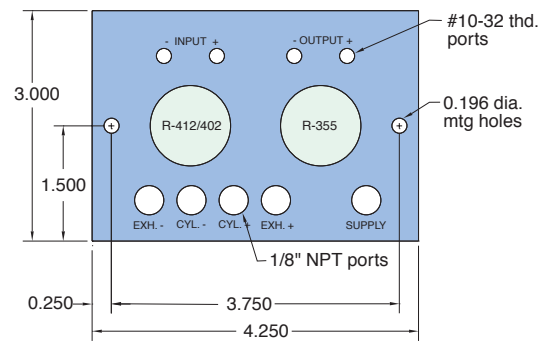
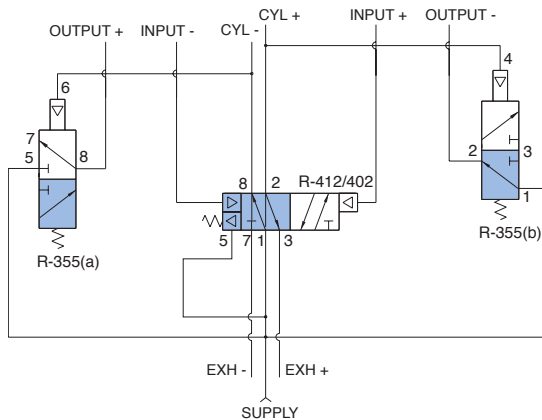
### Back Pressure Sensing for Double Acting Cylinders

**Size:** 4 1/4" x 3" x 13/16" thick - 2 modules



**Use:** Highly versatile autocycler manifold for use as an accessory to an R-932 sequencer manifold to accomplish a cycling subroutine.

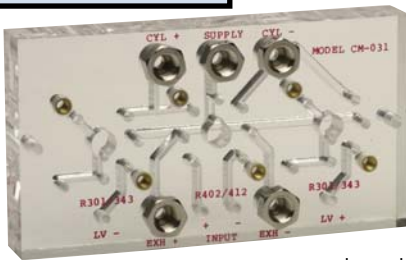
**Operation:** When supply air is first turned on, the "memory" feature of R-412 shifts output to port 8 for known starting point. When port 4 of R-355 allows air to flow from port 1 to 2 providing a signal at output (-) port. This output may be used to signal an R-932 sequencer that a step has been completed or the signal may be looped directly back into the input (+) port. This will pilot port 4 of the R-412 shifting the valve output to port 2 giving cylinder + output. As the cylinder reaches full extension, back pressure to port 6 of the R-355 decays allowing output from port 8 of that valve. This output may be used to signal an R-932 sequencer that a step has been completed or may be looped directly back into the input (-) port to repeat the cycle. Cylinder exhaust ports are provided in the manifold in 1/8" NPT to facilitate use of needle valves for speed control.



## CM-031

### Back Pressure Sensing for Double Acting Cylinder

**Size:** 6" x 3 1/4" x 13/16" thick -3 modules



**Use:** This is a new version of cycling without limits. The system interfaces with the sequencing system using R-932 modular valves. From this operation, you can go back to input the next sequencing function. This is cycling with back pressure, which also has a sensing option, and delay.

**Operation:** The CM-030 and CM-031 are back pressure sensing circuits similar to the CM-017 and CM-06. The circuits are identical in that they both use a power valve for directional control and two normally open 3-way valves in one body (R-355) while the CM-031 provides additional control options because it uses three valves. The output signal and pilot input signals are externally available. This allows for additional control options and interfaces without 932 sequence control system. With the cylinder at rest in the retracted position air pressure from port 8 of the power valve (R-402 or R-412) is directed to the rod end of the cylinder. It is also referenced to the pilot port of a normally open 3-way (b) maintaining

that valve closed. At this time there is an output at the - output port which comes from the working port of the other normally open 3-way valve (a). Connecting this output to the + input will shift the power valve, sending pressure to the cap end of the cylinder and allowing air to exhaust from the rod end. The air going to the cap end also pilots the 3-way valve (a), which cancels the pilot signal to the power valve. While the cylinder is extending, a back pressure decays allowing that valve (b) to open, producing a signal at the + output port. Connecting this port to the - input will pilot port 6 of the power valve and cause the cylinder to retract. This pressure will turn off valve (b) and the back pressure at the cap end of the cylinder keeps valve (a) closed. The CM-031 requires a separate valve at (a) and (b) but offers additional versatility because a time delay can be incorporated by using our R-341 module and using module R-305 maximizes the pressure differential across the piston. Access to the power valve pilot ports (+ and - inputs) and the + and - outputs enables these circuit boards to be used with the 932 sequence control in applications where it is not convenient to mount limit valves. These controls can also be used to sequence several operations by adding 1 or 2 more valves.

