

STANDARD PNEUMATIC CIRCUIT BOARDS

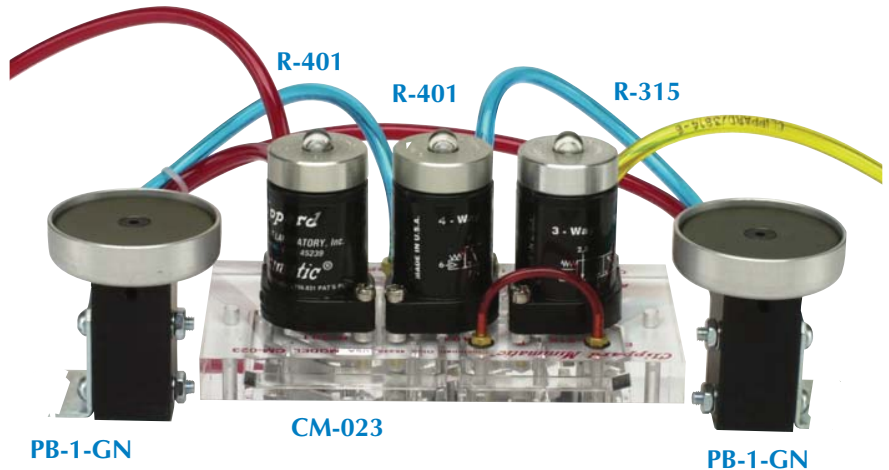
TWO HAND NO TIE DOWN



The Clippard Minimatic® CM-023 pneumatic circuit board is a self-contained modular circuit board with all interconnections needed to provide a two hand no tie down (THNTD) pneumatic circuit. The board is designed to be used with three Clippard modular plug-in control valves and to eliminate the piping time and materials normally associated with circuitry. Use of the CM-023 will assure simple and rapid installation of your two hand no tie down circuit.

The CM-023 THNTD control circuit requires two separate input signals that must be received approximately at the same instant before an output signal is obtained. Both input signals must be spontaneous and neither can be "tied down" or made constant. The main function of this control is to require a machine operator to use both hands to actuate the machinery, helping to insure that the operators hands are not in a position to be injured by the machine as it is actuated. When used with the Clippard PB guarded palm button valves which have been properly positioned and mounted, the CM-023 THNTD control will provide an output to actuate machinery only when the operator pushes each button simultaneously.

The growing emphasis on employee safety and governmental regulations requiring safe work conditions have encouraged the widespread use of two hand no tie down controls to protect workers from injury. Numerous types of THNTD controls have been introduced to the market. Many are cumbersome, bulky and expensive. The Clippard Minimatic THNTD package offers ease of installation and maintenance in a compact size.

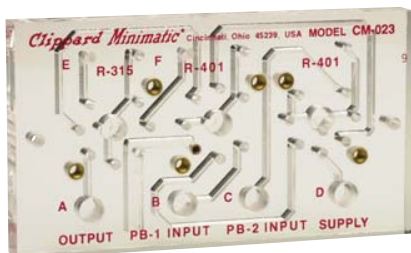


CM-023

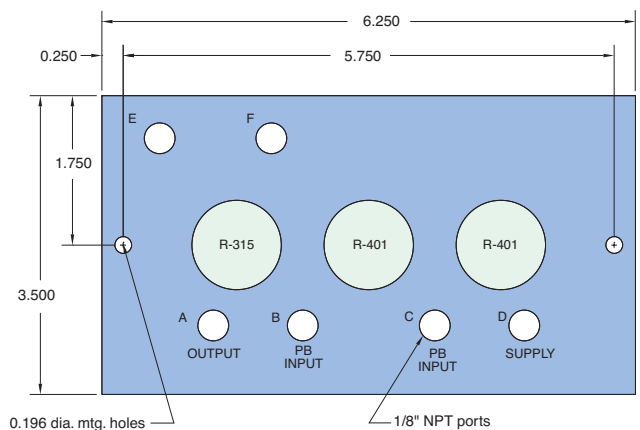
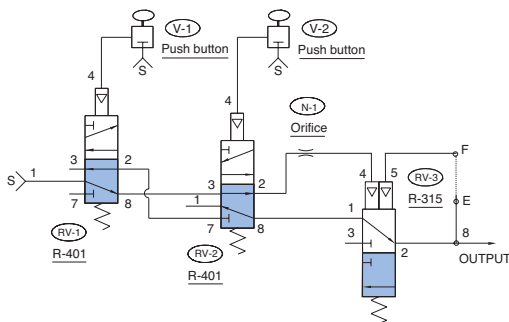
Circuit Board for 2 R-401 and 1 R-315 Valve
Warning: See instructions shipped with product

Size: 6 1/4" x 3 1/2" x 9/16" thick - 3 modules

Use: Clippard's Minimatic® CM-023 and CM-023-PQ circuit boards are self-contained modular circuit boards with all interconnections needed to provide a Two Hand No Tie Down (THNTD) pneumatic circuit. Use of the CM-023 or CM-023-PQ will assure simple and rapid installation of your two hand no tie down circuit.



CM-023





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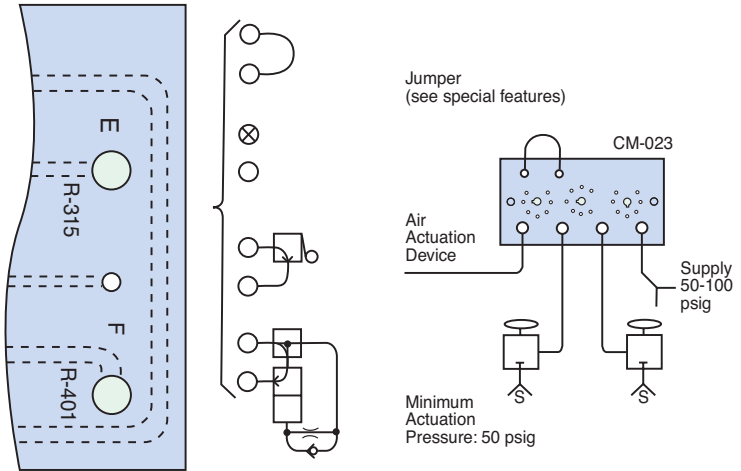
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Circuit Operation

RV-3 is held open by supply air that passes through RV-1, RV-2 and N-1. When RV-1 is actuated alone, the pilot air for RV-3 flows back through the N-1 and RV-2 to atmosphere at RV-1 and RV-3 is closed by the spring. When RV-2 is actuated alone, the same sequence occurs except the pilot air from RV-3 exhausts to atmosphere via RV-2. Restriction N-1, which determines the time span during which both signals must be received in order to obtain an output.

When RV-1 and RV-2, are actuated together, supply air is directed through RV-1, RV-2 and RV-3 to the output providing a momentary output signal that is determined by N-1. If a maintained output is required, a jumper between "E" + "F" maintains an output as long as the operator is depressing both palm buttons.

The indicator on RV-3 (R-315) must be down for an output to be obtained. If either RV-1 or RV-2 is actuated separately, their respective indicator will go up, but after approximately one second the indicator on RV-3 (R-315) will go down showing that the valve has shifted and an output cannot be obtained. Circuit performance and sequence should be periodically observed to verify proper function. Absolutely no alterations or modifications should be made to this circuit or its component parts.



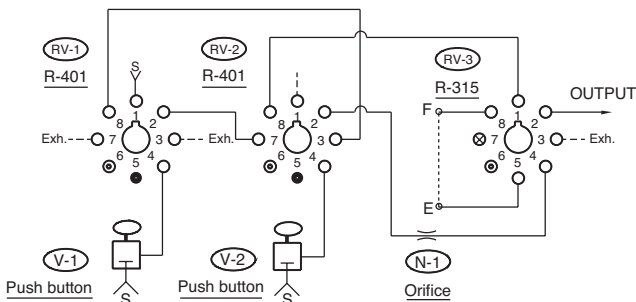
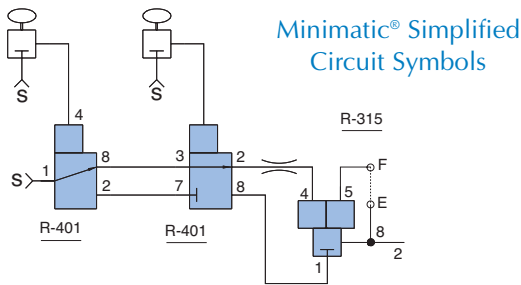
Maintained Output occurs as long as both pushbuttons are held. Release of either button terminates the output. (Connect E to F)

Momentary Output gives a single output pulse that is about 50 MS in duration. (Plug E with 11755 screw plug; F is open)

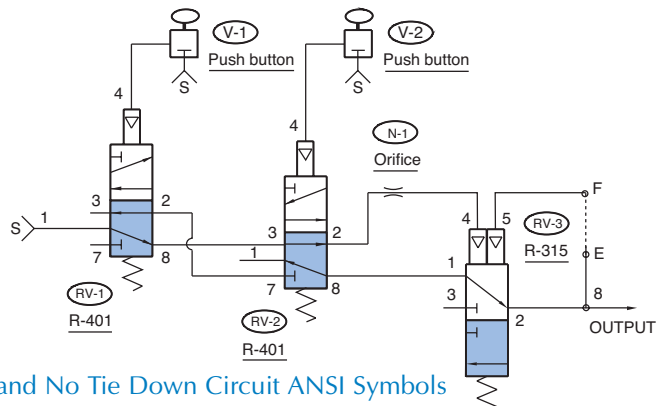
Cancelable Output terminates the output after a normally open 3-way limit valve has been tripped, even if both pushbuttons are still held. (Interpose normally open 3-way valve)

Cancel Output after Time Delay is a variation of cancelable output (above) where pneumatic delay valve such as Clippard Model R-331 is set to cancel the output after a designated time interval has elapsed. (Interpose normally open 3-way delay valve)

It is the *user's responsibility* to determine which special feature can be safely used in his particular application.



Octoport Piping Diagram



Two Hand No Tie Down Circuit ANSI Symbols