

NEW

PRODUCT INFORMATION

MDM2® Series C



Modular Double Valve with Integrated Soft Start Control Reliable Energy Isolation

FEATURES:

- Proven ROSS DM2® technology with integrated soft start.
- Soft start application of air to the system when energized; can be adjusted for slower or faster buildup of system pressure.
- Rapid exhaust of downstream air when de-energized to remove stored energy and allow safe access.
- Modular mounting for flexible configured air entry system assembly; order a single part number to meet your specific application requirements.
- **Dynamic Monitoring with Memory.** Monitoring, memory and air flow control functions are integrated into two identical valve elements. Valves lock-out if asynchronous movement of valve elements occurs during actuation or de-actuation, resulting in a residual outlet pressure of less than 1% of supply.
- **An action is required for reset.** Cannot be reset by removing and re-applying supply pressure. Reset can be accomplished by the integrated electrical (solenoid) reset or by the manual reset button.
- **Basic 3/2 Normally Closed Valve Function.** Dirt tolerant, wear compensating poppet design for quick response and high flow capacity. PTFE back-up rings on pistons to enhance valve endurance — operates with or without inline lubrication.
- **LED Indication.** Light-emitting diode (LED) indicators of main solenoid operation, reset solenoid operation, and status indicator condition.
- **Status Indicator.** Includes a pressure switch with both normally open (NO) and normally closed (NC) contacts to provide status feedback to the control system indicating whether the valve is in the lockout or ready-to-run condition.
- **Transducer (optional).** For monitoring of downstream pressure in the system.
- **Silencers.** All models include high flow, clog resistant silencers.

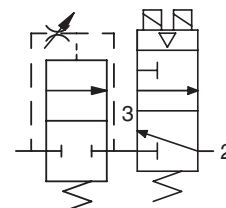


**Category 4
Performance Level e**
(Certification Pending)

U.S. Patent
No. 6840258, 6840259
and Worldwide
Patents Pending

Model Number*	Valve Size	Transducer	Port Size		C _v		Weight kg
			Inlet	Outlet	1 - 2	2 - 3	
MDM2CDA55A21	8	without	G 3/4	G 3/4	3,7	8,5	7,3
MDM2CDA55A23	8	with	G 3/4	G 3/4	3,7	8,5	7,4

Simplified
Schematic



*BSPP port threads. For NPT threads: Replace **D** in the model number with letter **N**. Example: MDM2CNA55A21.

Standard Specifications

Pilot Solenoids: According to VDE 0580. Enclosure rating according to DIN 400 50 IP 65. Connector socket according to DIN 43650 Form A. All three solenoids rated for continuous duty.

Standard Voltages: 24 VDC.

Power Consumption (each solenoid):

For Primary and Reset Solenoids: 1.2 watts.

Enclosure Rating: IP65, IEC 60529.

Electrical Connection: M12, 5-Pin.

Ambient Temperature: -10° to 50°C.

Media Temperature: 4° to 80°C.

Flow Media: Filtered, lubricated or unlubricated (mineral oils

according to DIN 51519, viscosity classes 32-46); 5-micron recommended

Inlet Pressure: 2 to 10 bar.

Pressure Switch (Status Indicator) Rating: 5 A at 30 VDC.

Monitoring: Dynamically, cyclically, internally during each actuating and de-actuating movement. Monitoring function has memory and requires an overt act to reset unit after lockout.

Mounting Orientation: Vertically, with pilot solenoids on top.

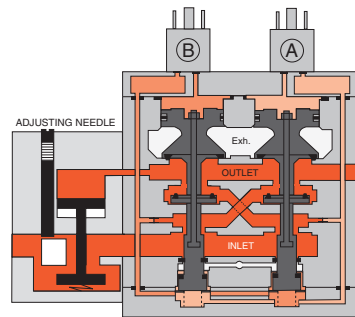
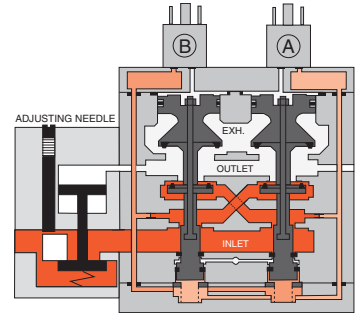
Port Threads: NPT, BSPP.

Product Data for SISTEMA Library users, pending.

Applications: Category 4 applications — e.g. Air Dump / Release

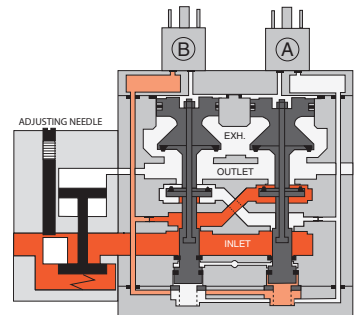


Valve de-actuated (ready-to-run): The flow of inlet air pressure to the inlet chamber of the main valve internals is restricted by a fixed orifice and an adjustable flow control as well as an air piloted 2-way normally closed poppet valve. The flow of inlet air pressure into the crossover passages is restricted by the size of the passage between the stem and the valve body opening. Flow is sufficient to quickly pressurize pilot supply/timing chambers A and B. The inlet poppets prevent air flow from crossover passages into the outlet chamber. Air pressure acting on the inlet poppets and return pistons securely hold the valve elements in the closed position. (Reset adapter omitted for clarity).

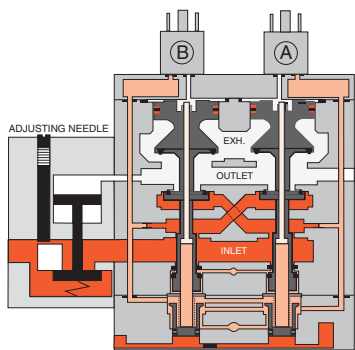


Valve actuated: Energizing the pilot valves simultaneously applies pressure to both pistons, forcing the internal parts to move to their actuated (open) position where inlet air flow to crossover passages is fully open, inlet poppets are fully open, and exhaust poppets are fully closed. The outlet is then pressurized at a rate allowed by the fixed orifice and the adjusted flow control. Once the air pressure in the outlet chamber reaches approximately 60% of inlet pressure, the air piloted 2-way normally closed poppet valve opens fully and the pressure in the inlet, crossovers, outlet, and timing chambers are quickly equalized. The adjustable flow control will control the time it takes for the outlet air pressure to reach approximately 60% of inlet pressure. Green "SOL. 1" and "SOL. 2" LEDs will be displayed when the main solenoids are energized. De-energizing the pilots quickly causes the valve elements to return to the ready-to-run position.

Valve locked-out: Whenever the valve elements operate in a sufficiently asynchronous manner, either on actuation or de-actuation, the valve will move to a locked-out position. In the locked-out position, one crossover and its related timing chamber will be exhausted, and the other crossover and its related timing chamber will be fully pressurized. The valve element (Side B) that is partially actuated has pilot air available to fully actuate it, but no air pressure on the return piston to fully de-actuate the valve element.



Air pressure in the crossover acts on the differential of Side B stem diameters creating a latching force. Side A is in a fully closed position, and has no pilot air available to actuate, but has full pressure on the inlet poppet and return piston to hold the element in the fully closed position. Inlet air flow on side A into its crossover is restricted, and flows through the open inlet poppet on Side B, through the outlet into the exhaust port, and from the exhaust port to atmosphere. Residual pressure in the outlet is less than 1% of inlet pressure. The return springs are limited in travel, and can only return the valve elements to the intermediate (locked-out) position. Sufficient air pressure acting on the return pistons is needed to return the valve elements to a fully closed position.

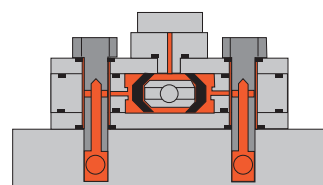


Resetting the valve: The valve will remain in the locked-out position, even if the inlet air supply is removed and re-applied.

A remote reset signal must be applied to reset the valve. A momentary, remote electrical signal must be applied to the reset solenoid to apply pressure to the reset pistons in the valve. Actuation of the reset piston physically pushes the main valve elements to their closed position. Inlet air fully pressurizes the crossovers and holds the inlet poppets on seat. Actuation of the reset piston opens the reset poppet, thereby, immediately exhausting pilot supply air, thus, preventing valve operation during reset. (Reset adapter added to illustration). De-actuation of reset pistons causes the reset poppets to close and pilot supply to fully pressurize. Reset air pressure is applied by a 3/2 normally closed solenoid, or a manual push button mounted on the reset adapter in the top valve cover. A green "RESET SOL." LED will be displayed when the reset solenoid is energized.

The reset procedure is as follows:

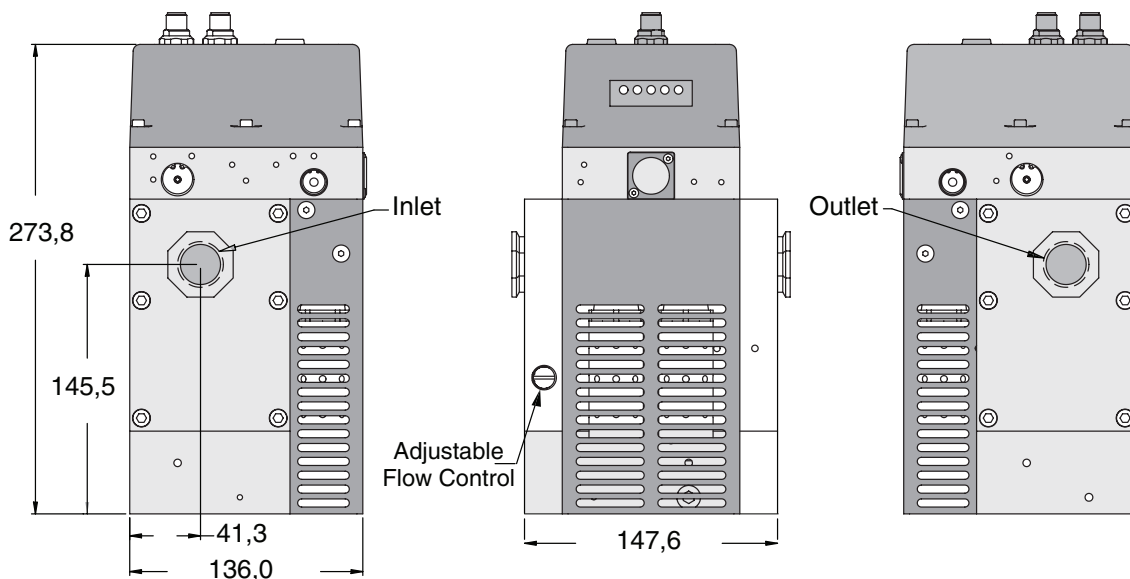
- Remove the electrical signals to the main coils.
- Ensure there is air supplied to the valve.
- Energize the reset solenoid for a minimum of 200 ms.
- Allow a 200 ms delay after de-energizing the reset solenoid and re-energizing the main solenoids.



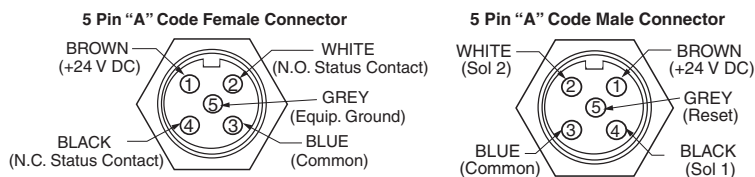
Status Indicator in normal Ready-to-Run Position

Status Indicator: The status indicator pressure switch will actuate when the main valve is operating normally, and will de-actuate when the main valve is in the locked-out position or inlet pressure is removed. This device is not part of the valve lockout function, but, rather, only reports the status of the main valve. If the valve is in a ready-to-run condition, a green "STATUS" LED will be displayed. If the valve is faulted or there is no air pressure at the inlet, a red "STATUS" LED will be displayed.

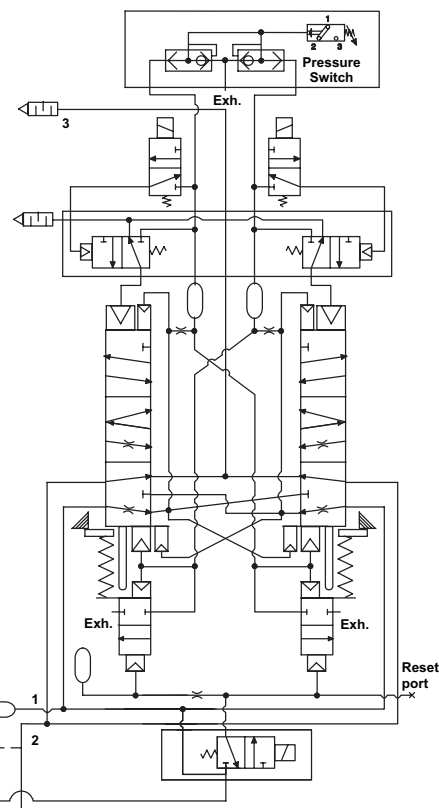
Dimensions – mm



Valve Wiring



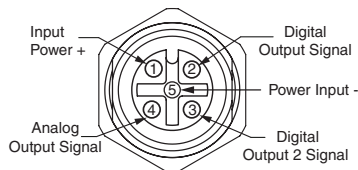
MDM2® Series C Schematic



Digital Pressure Transducer

Model Number 1232H30

- Precision digital pressure transducer with 5 pin female connection
- Two PNP digital outputs which may be set individually, 4-20 mA analog output
 - Three operation modes: Easy, Window and Hysteresis
 - Selectable response times to eliminate output chattering
 - Voltage: 12 - 24 VDC
 - 6 pressure unit conversions
 - Lockable keypad
 - Fast zero reset



Wiring Kits

Kit No. 2431H77 MDM2C Wiring Kit - 5 meters.
Includes two cords, and the cord grips.

Kit No. 2432H77 MDM2C Wiring Kit with Transducer - 5 meters.
Includes three cords, and the cord grips.

Customized Solutions on Request



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