

ROSS Controls' NEW Obstruction Sensing System is designed to automatically reverse the direction of a pneumatic cylinder when it detects an obstruction.

What are the benefits of this technology?

Benefits:

- Clean, simple design — Eliminates complex circuitry.
- Cost effective — Compared to alternative systems.
- Versatile — Controls all types of cylinders.
- Sensitive — Controls loads ranging from 2 ounces to over 400 lbs.
- High flow rates — C_v of 1.3.
- Wide variety of voltages — 12 VDC to 220 VAC (see ordering instructions below).

Applications:

- Automatic Doors/Door Guards
- Pallet Handling
- Automatic Feed & Conveyor Systems
- Variable Height Pick & Place
- Case Packaging

How the system works: (see figure 1).

Momentary input from the start button shifts the valve to extend the cylinder (rodless or rod-type). Once the cylinder reaches the full extended position on a momentary input signal from the retract button, it shifts the valve to retract the cylinder.

Loss of back pressure, caused by an obstruction, triggers the pressure switch to shift the valve and retract the cylinder. A reed switch overrides the detection at the cylinder's full extended position. If the normally closed reed switch is not used, then the cylinder will automatically retract after reaching the full extended position.

System Setup:

1. Load

The supply pressure should be adjusted (regulated) to satisfy the load requirement of the system.

- The supply pressure range can be adjusted with a standard regulator.
- The supply pressure range of the IS module is between 22 and 116 PSI.

2. Speed

The flow controls on the IS module should be adjusted to satisfy the speed requirement of the system.

- The exhaust throttle flow control can be adjusted with a flat head screw driver.

3. Sensitivity

The pressure switch should be adjusted to meet the sensitivity requirement of the system.

- The pressure switch can be adjusted with a 5mm allen wrench.
- A clockwise adjustment provides greater sensitivity.
- A counter-clockwise adjustment provides less sensitivity.

Ordering Instructions

Voltage	Part Number*
12 VDC	D2876A2132J
24 VDC	D2876A2132C
110 VAC	D2876A2132H
220 VAC	D2876A2132B
12 VDC	2876A2132J
24 VDC	2876A2132C
110 VAC	2876A2132H
220 VAC	2876A2132B

*D prefix indicates metric threads

Component Characteristics

Description	Units	Value
Medium		Air
Filtration	μ	40
Lubrication		None
Supply Pressure (min.) (max.)	PSI	22 116
Flow	C_v l/min	1.3 1300
Ambient Temperature (min.) (max.)	$^{\circ}F$	14 140
Fluid Temperature (min.) (max.)	$^{\circ}F$	14 158

Power Consumption

Inrush	AC		DC
	50 Hz	60 Hz	
12 volts	—	—	2.8W
24 volts	8.5 VA	8.5 VA	2.5 W
110 volts	8.5 VA	8.5 VA	2.7 W
220 volts	8.5 VA	8.5 VA	3.5 W
Holding	AC		DC
	50 Hz	60 Hz	
12 volts	—	—	2.8W
24 volts	8.5 VA	8.5 VA	2.5 W
110 volts	8.5 VA	8.5 VA	2.7 W
220 volts	8.5 VA	8.5 VA	3.5 W

Continuous Duty Solenoid Coils

CAUTION: This device as a singular device shall not be used in hazardous applications for which safety considerations and/or regulations require control reliability or redundant controls.

Figure 1
System Setup Diagram

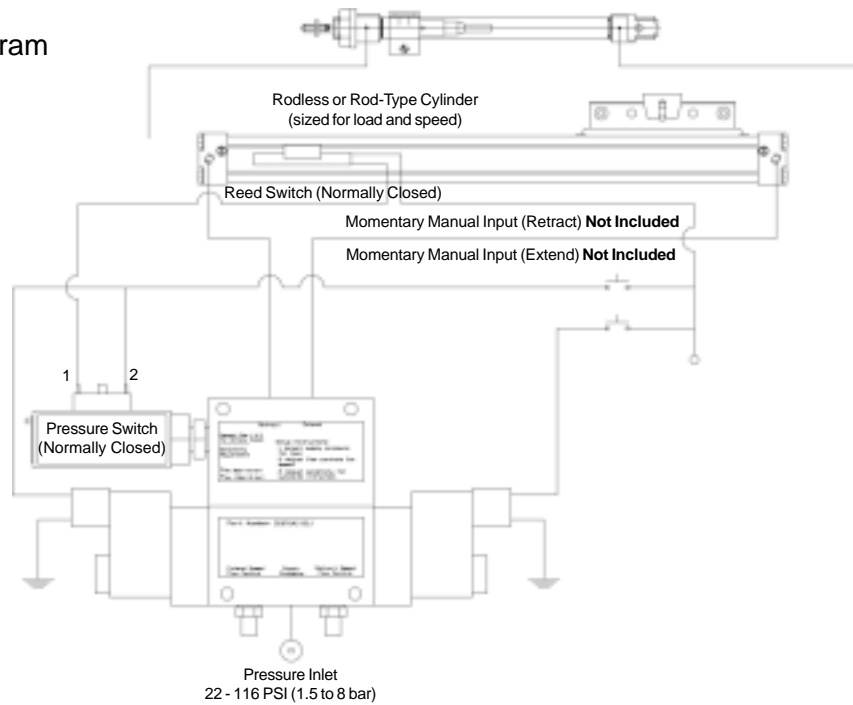
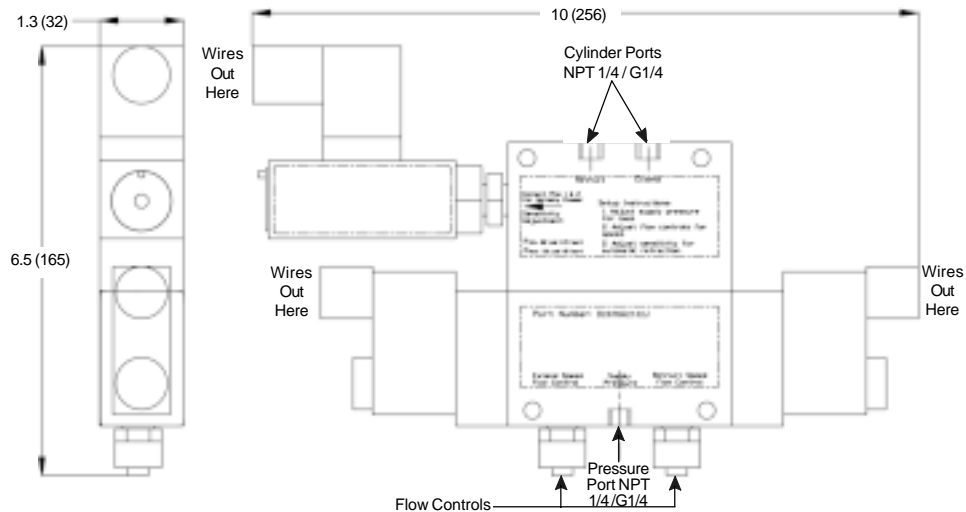


Figure 2
Dimensional Diagram
Inch (mm)



CAUTIONS

PRE-INSTALLATION or SERVICE

1. Before servicing a valve or other pneumatic component, be sure that all sources of energy are turned off (OSHA 1910.147, EN 1037) and that the entire pneumatic system is shut off and exhausted, and all power sources are locked out.
2. All ROSS products, including service kits and parts, should be installed and/or serviced only by persons having training and experience with pneumatic equipment. Because any installation can be tampered with or need servicing after installation, persons responsible for the safety of others or the care of equipment must check every installation on a regular basis and perform all necessary maintenance.
3. All applicable instructions should be read and complied with before using any fluid power system in order to prevent harm to persons or equipment. In addition, overhauled or serviced valves must be functionally tested prior to installation and use.
4. Each ROSS product should be used within its specification limits. In addition, use only ROSS parts to repair ROSS products. Failure to follow these directions can adversely affect the performance of the product or result in the potential for human injury.

FILTRATION and LUBRICATION

5. Dirt, scale, moisture, etc. are present in virtually every air system. Although some valves are more tolerant of these contaminants than others, *best performance will be realized if a filter is installed to clean the air supply, thus preventing contaminants from interfering with the proper performance of the equipment.* ROSS recommends a filter with a 5-micron rating for normal applications.
6. All standard ROSS filters and lubricators with polycarbonate plastic bowls are designed for compressed air applications only. Do *not* fail to use the metal bowl guard, where provided, to minimize danger from high pressure fragmentation in the event of bowl failure. Do not expose these products to certain fluids, such as alcohol or liquefied petroleum gas, as they can cause bowls to rupture, creating a combustible condition, hazardous leakage, and the potential for human injury. Immediately replace a crazed, cracked, or deteriorated bowl. When bowl gets dirty, replace it or wipe it with a clean dry cloth.
7. Only use lubricants which are compatible with materials used in the valves and other components in

the system. Normally, compatible lubricants are petroleum base oils with oxidation inhibitors, an aniline point between 82 degrees Celsius (180 degrees Fahrenheit) and 104 degrees Celsius (220 degrees Fahrenheit), and an ISO 32, or lighter, viscosity. Avoid oils with phosphate type additives which can harm polyurethane components, potentially leading to valve failure and/or human injury.

AVOID INTAKE/EXHAUST RESTRICTION

8. Do not restrict the air flow in the supply line. To do so could reduce the pressure of the supply air below the minimum requirements for the valve and thereby cause erratic action.
9. Do not restrict a poppet valve's exhaust port as this can adversely affect its operation. Exhaust silencers must be resistant to clogging and have flow capacities at least as great as the exhaust capacities of the valves. Contamination of the silencer can result in reduced flow and increased back pressure.

ROSS expressly disclaims all warranties and responsibility for any unsatisfactory performance or injuries caused by the use of the wrong type, wrong size, or inadequately maintained silencer installed with a ROSS product.

POWER PRESSES

10. Mechanical power presses and other potentially hazardous machinery using a pneumatically controlled clutch and brake mechanism must use a press control double valve with a monitoring device. A double valve without a self-contained monitoring device should be used only in conjunction with a control system which assures monitoring of the valve. All double valve installations involving hazardous applications should incorporate a monitoring system which inhibits further operation of the valve and machine in the event of a failure within the valve.

ENERGY ISOLATION/EMERGENCY STOP

11. Per specifications and regulations, ROSSL-O-X[®] and L-O-X[®]EEZ-ON[®] products are defined as energy isolation devices, NOT AS EMERGENCY STOP DEVICES.





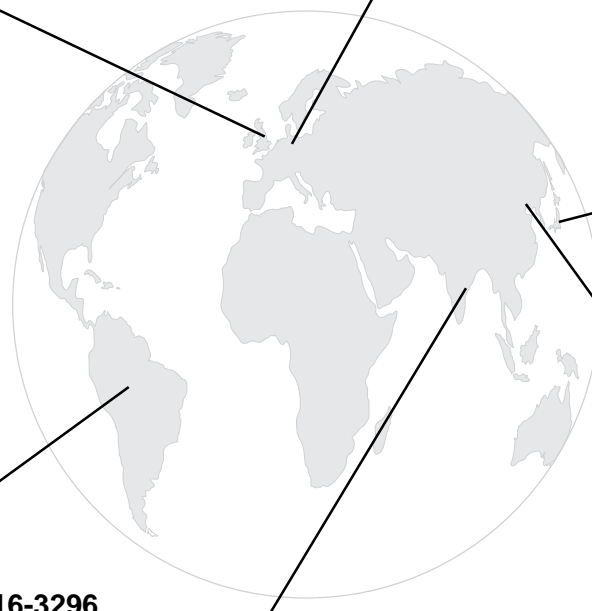
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WARRANTY

Products manufactured by ROSS are warranted to be free of defects in material and workmanship for a period of one year from the date of purchase. ROSS' obligation under this warranty is limited to repair or replacement of the product or refund of the purchase price paid solely at the discretion of ROSS and provided such product is returned to ROSS freight prepaid and upon examination by ROSS is found to be defective. This warranty shall be void in the event that product has been subject to misuse, misapplication, improper maintenance, modification or tampering. THE WARRANTY EXPRESSED ABOVE IS IN LIEU OF AND EXCLUSIVE OF ALL OTHER WARRANTIES AND ROSS EXPRESSLY DISCLAIMS ALL OTHER WARRANTIES EITHER EXPRESSED OR IMPLIED WITH RESPECT TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ROSS MAKES NO WARRANTY WITH RESPECT TO ITS PRODUCTS MEETING THE PROVISIONS OF ANY GOVERNMENTAL OCCUPATIONAL SAFETY AND/OR HEALTH LAWS OR REGULATIONS. IN NO EVENT SHALL ROSS BE LIABLE TO PURCHASER, USER, THEIR EMPLOYEES OR OTHERS FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM A BREACH OF THE WARRANTY DESCRIBED ABOVE OR THE USE OR MISUSE OF THE PRODUCTS. NO STATEMENT OF ANY REPRESENTATIVE OR EMPLOYEE OF ROSS SHALL EXTEND THE LIABILITY OF ROSS AS SET FORTH HEREIN.