

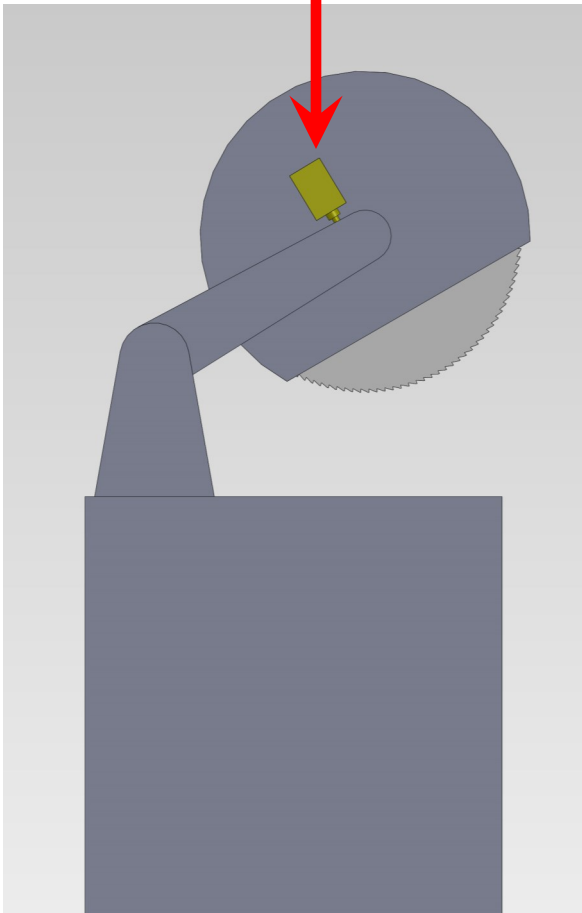
BMI Tool Safe Sensor

Limit Switch Version

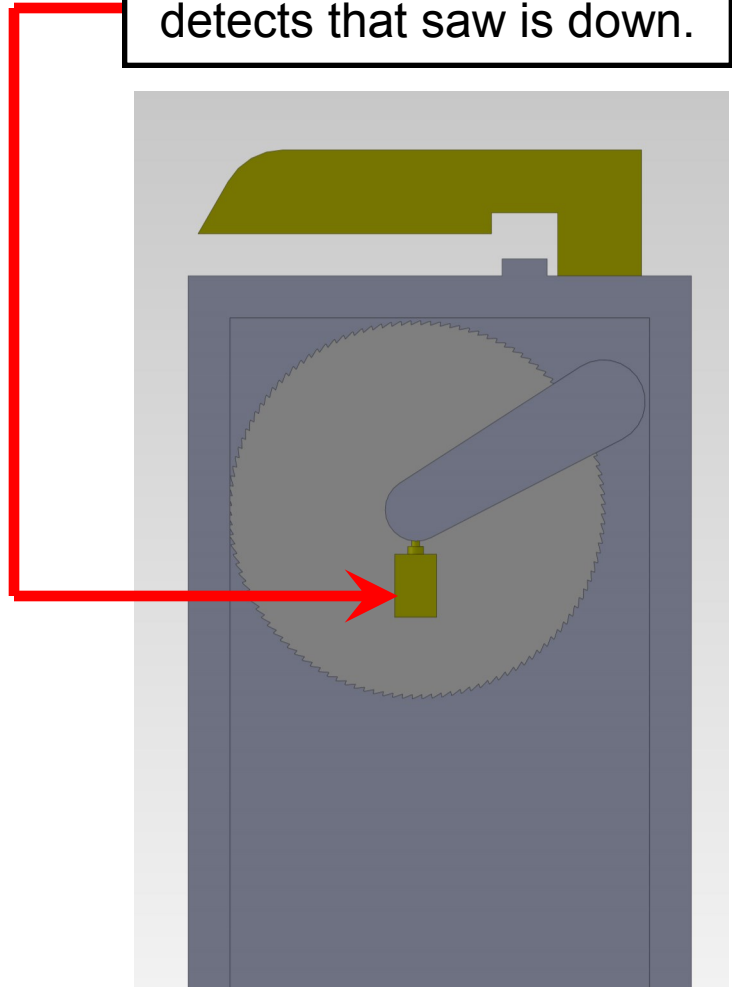
The Tool Safe Sensor is a limit switch to be installed on the user's saw, drill press, punch press, or whatever the processing tool may be, that, when depressed, indicates to the RazorGage software that the processing tooling is not in a position that favors movement of the pusher. The software then prohibits motion of the positioning carriage. The Tool Safe Sensor is also used to detect that the tool has completed a cycle. In certain software screens that allow semi-automatic to fully automatic operation, the RazorGage will automatically move to the next position after sensing that the Tool Safe Sensor has opened and closed within a certain timeframe. Since the RazorGage control is simply looking for a set of contacts to close, you may use a relay on your machine instead of the limit switch. Contact the factory for more details.



Down Cut Saw - Switch detects that saw is up.



Up Cut Saw - Switch detects that saw is down.



BMI Tool Safe Sensor

P2E Version

Some saws have pneumatic logic controlling the saw cycle. Often this logic includes an air signal that is present (or absent) when the saw is in the safe position. In these cases, a P to E (Pneumatic to Electric) sensor can use that air signal to close or open a set of electrical contacts. The photos below show an example of a BMI P2E installation.

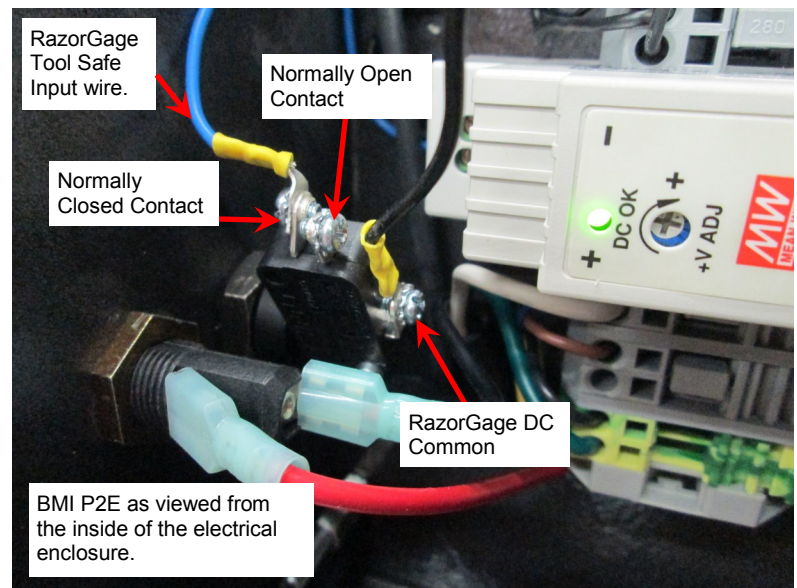
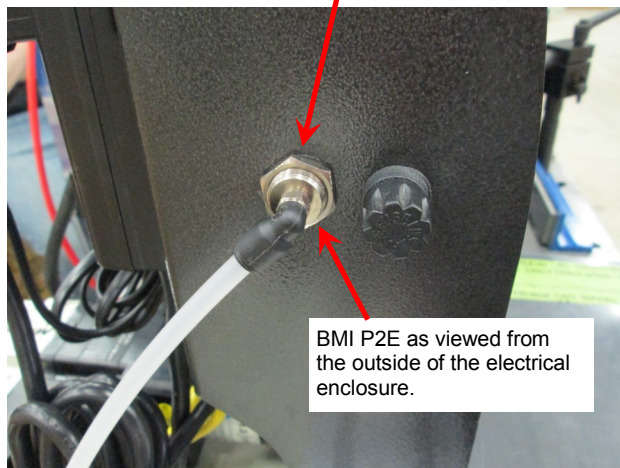
This air switch is part of the saw's existing pneumatic logic. In this case the switch blows compressed air whenever the saw is NOT in the safe position.

When shipped from the saw's manufacturer, this air line was plugged directly into the air switch.

This air line goes to the BMI P2E

Blue air line was added.

To incorporate the BMI P2E, we installed this Y connector to allow us to send the air signal to both its originally intended destination and to the BMI P2E

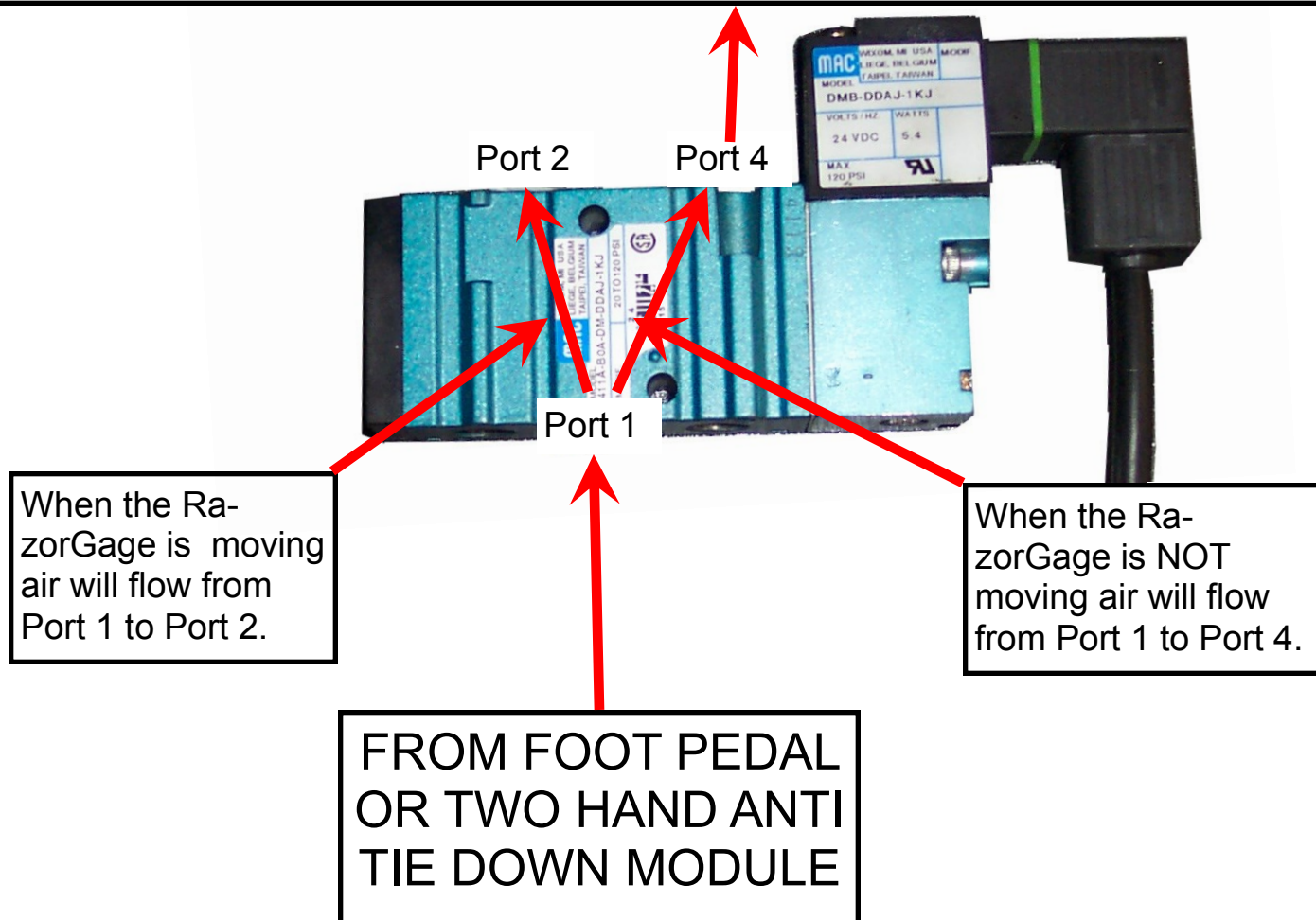


The BMI P2E has one Normally Open and one Normally Closed contact. In this case the air signal is absent when the saw is up (safe). Since the RazorGage is looking for a closed contact when the saw is safe, we tied the RazorGage Tool Safe input wire to the Normally Closed contact.

BMI Air Safety

The Air Safety Valve, one of the optional components of the RazorGage Basic Machine Interface (BMI) is used to divert an air signal in a machine's control circuit to keep it from cycling when the RazorGage is in motion. For example if you have a saw that uses a foot pedal or two hand trip that delivers an air signal to a control circuit when pressed the signal will be diverted to atmosphere when the RazorGage is moving. The RazorGage Air Safety Valve is a 4-way 2 position solenoid valve powered by 24 Volts DC current. When the RazorGage is not moving Port 1 is open to Port 4. When the RazorGage is in motion Port 1 is open to Port 2. See a typical plumbing example below. The BMI Air Safety can also be configured as a relay instead of an air valve. Contact the factory to customize a solution for your application.

TO LOGIC CONTROL THAT RECEIVES AIR SIGNAL FROM TWO HAND ANTI TIE DOWN MODULE OR FOOT PEDAL FOR THE PURPOSE OF CYCLING THE MACHINE.



BMI Plus - AutoCycle Package

The BMI Plus consists of a Tool Safe Sensor, Tool UnSafe Sensor, a 4-way solenoid valve for operating the processing tool such as a saw or punch press, a 4-way solenoid valve for operating clamps that may be associated with the process, an E-Stop, and an air dump. The Tool Safe Sensor is mounted to indicate that the tool is out of the way for material advance and indicates that a cycle is complete. The Tool UnSafe Sensor is mounted at the extreme opposite end of the tool's process. For example, on a down cutting saw, the Tool UnSafe Sensor will be mounted to detect the maximum downward position of the saw. The Tool Valve's A & B ports are connected to the extend and retract ports of the air cylinder that operates the tool. The Clamp Valve's A & B ports are connected to the extend and retract ports of the clamping cylinders. Certain screens in the RazorGage software utilize this interface to automatically cycle the clamps and the tool to create an automatic machine. The E-Stop button kills power to the RazorGage motor, the solenoid valves, and the Air Dump Valve and can be tied into the E-Stop circuit of the attached machine. The BMI Plus has all you need to automate most machines but if you need a different integration package, contact the factory for a solution that works for your application.

