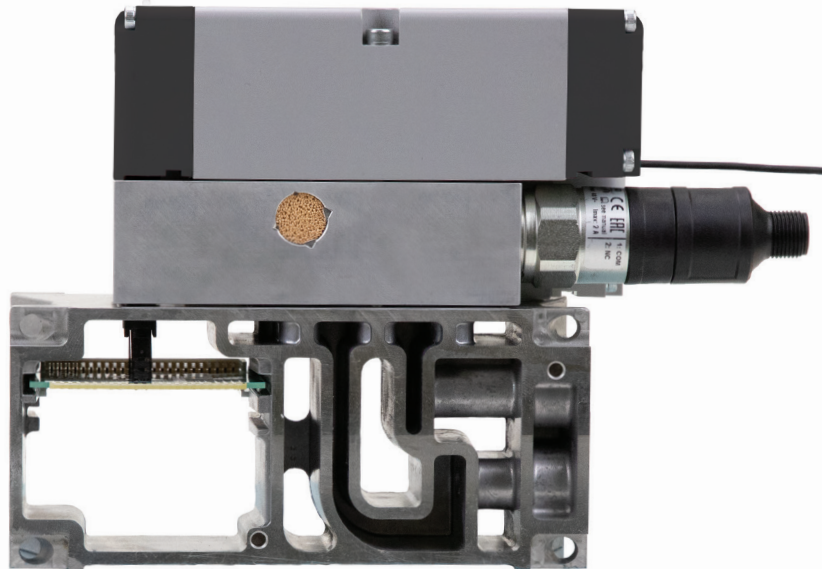


SCAN ME



# HA Spool Sensing (for the H Series ISO Valve Manifold)

Bulletin 0600-B103



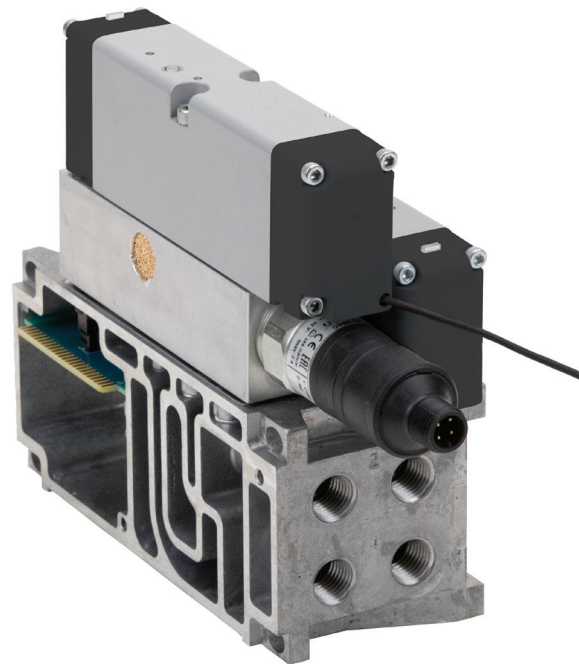
ENGINEERING YOUR SUCCESS.

# HA Spool Sensing (for the H Series ISO Valve Manifold)

## HA Spool Sensing:

Parker offers enhanced safety on manifold with the introduction of HA Spool Sensing which provides sensing and feedback of spool position on standard ISO (size 01) HA valves. This is a cost-effective way to add sensing capability to a pneumatic control circuit when using ISO style valve manifolds, such as Parker's H Series ISO valve manifold product.

The solid-state sensor is offered in a single or double solenoid, 2 position HA valve (singular) in either Plug-In (ISO 15407-2) or Non-Plug-In (ISO 15407-1) base styles. The HA Spool Sensing valve is available in PNP or NPN switching outputs with an M8 or M12 connector for easy installation. Monitoring at the PLC allows HA Spool Sensing to become an integrated part of a safety circuit (single channel), where redundancy or feedback is required. With this flexibility, enhanced safety on manifold can be easy to integrate reducing overall costs. This product is suitable for use directly on the valve manifold and also can be used in conjunction with the PXM module for added versatility.



## Integrated Spool Sensing for Safety Circuits:

HA Spool Sensing has been designed to indicate the end position of the valve spool with single channel feedback to the PLC. HA Spool Sensing is not a certified safety component to The Machinery Directive 2006/42EC however, with proper integration, the HA Spool Sensing product is suitable for use in safety circuits following safety related parts of control systems (SRP/CS) to EN ISO 13849-1 standards. It has been developed and manufactured in accordance with the basic well tried and trusted safety principles as outlined in EN ISO 13849-2. When used in high categories, the sensor signal from the valve must be evaluated by the control system to achieve high diagnostic coverage and proper fault detection.

For additional information visit [www.parker.com/pdn/HASpoolSensing](http://www.parker.com/pdn/HASpoolSensing)

# HA Spool Sensing (for the H Series ISO Valve Manifold)

## HA Spool Sensing as a Redundant Safety Circuit:

Redundancy in circuit design can be achieved when HA Spool Sensing is used in conjunction with the PXM Pilot Exhaust Module. This combination allows sensing of both the spool position of the HA valve and the ability to control pilot pressure within a given zone to ensure pilot is on or off and the spool has shifted. This can be a requirement prior to performing a secondary operation. This creates a pneumatic controlled safety zone without removal of PLC electrical signals or main supply pressure in the zone allowing enhanced control, additional safety control and maintenance flexibility.

## Designing with PXM

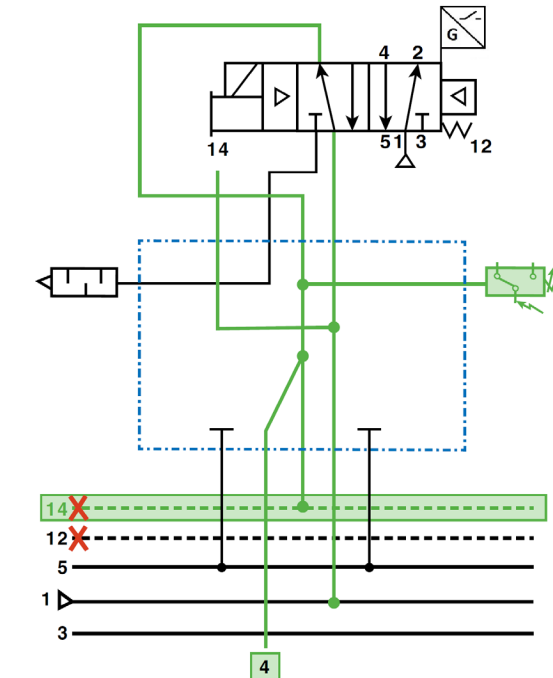
When designing circuits with safety in mind the selection of valve type is of critical importance. The PXM Pilot Exhaust module will only control externally piloted valves when solenoid 14 is energized (on). When solenoid 14 is de-energized (off), control of all externally piloted valves in the zone is disabled for both solenoid actuation and manual override until solenoid 14 is energized again.

## Designing with HA Spool Sensing

HA spool sensing will indicate with solid state sensors if the spool has shifted however; in the event of power loss the valve will respond based on its design. Careful consideration must be taken to ensure a fail-safe design. For this reason, most safety applications will utilize a spring return single solenoid valve design.

When pilot pressure or power is removed valves will perform as follows:

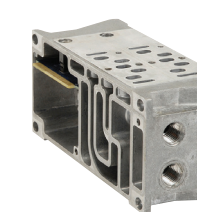
- A 5/2 single solenoid (mechanical spring return) valve will return to the 12-operator state (known position)
- A 5/2 double solenoid valve will maintain last state



**HA Spool Sensing** - Mounts on top of PXM and provides solid state sensing of spool position to the PLC via M8 or M12 connector. Can also be used for spool sensing without the PXM module for sensing only.



**PXM** - Connects main supply pressure in the HA valve to the 14-pilot manifold galley when the 14 solenoid is energized and with sensing can provide feedback of pilot pressure to the PLC.



**Manifold** - maintains supply pressure but waits for pilot signal to actuate the externally piloted valves in the pressure zone. (Port 2 is disabled, while port 4 of the valve is connected to main supply pressure. This port can be blocked or connected to other functions.)

# HA Spool Sensing

## (for the H Series ISO Valve Manifold)



### HA Spool Sensing Technical Specifications:

General Specifications	
Valve Function	5/2 single or double solenoid
Port Sizes (working)	1/4
Pilot Pressure	Pilot, Minimum Operating Pressure Spring return air assist 30 PSI Air return 25 PSI
Operation Pressure	Vac to 10 bar / Vac to 145 PSIG
Media	Compressed air to DIN ISO 8573-1:2010 (7:4:4)
Nominal Operating Voltage	24VDC (Consult configurator for 120V)
Valve Switching Time	24ms ON, 26ms OFF
Power Consumption (Sensor)	1W to 0.20W
Sensor Cable Length	0.3 Meters
Power Consumption (Valve)	1W @ 24VDC or 1.5VA for 120VAC
ISO Size 01	cCSAus, CE and IP65
Certificates	Consult Factory
B10d	

### Ordering Guide

	5/2 Single Solenoid	5/2 Double Solenoid
Plug-In	HA1VXBG0G9A2P (air return, plug-in, M12, PNP)	HA2VXBG0G9A2P (M12, PNP)
	HA1VXBG0G9A8P (air return, plug-in, M8, PNP)	HA2VXBG0G9A8P (M8, PNP)
	HA1VXBG0G9A8N (air return, plug-in, M8, NPN)	HA2VXBG0G9A8N (M8, NPN)
	HAEVXBG0G9A2P (spring/air return, M12, PNP)*	
	HAEVXBG0G9A8P (spring/air return, M8, PNP)*	
	HAEVXBG0G9A8N (spring/air return, M8, NPN)*	
Non plug-in	HA1WXBG2G9000FA2P (air return, M12, PNP)	HA2WXBG2G9000FA2P (M12, PNP)
	HA1WXBG2G9000FA8P (air return, M8, PNP)	HA2WXBG2G9000FA8P (M8, PNP)
	HA1WXBG2G9000FA8N (air return, M8, NPN)	HA2WXBG2G9000FA8N (M8, NPN)
	HAEWXBG2G9000FA2P (spring /air return, M12, PNP)*	
	HAEWXBG2G9000FA8P (spring /air return, M8, PNP)*	
	HAEWXBG2G9000FA8N (spring /air return, M8, NPN)*	

\*Safety applications should use spring assisted single solenoid valves for known return position. For additional configurations contact the factory or catalogue 0600P  
For additional configurations, including 120V please use configurator at [www.parker.com/pdn/HASpoolSensing](http://www.parker.com/pdn/HASpoolSensing)



Parker Hannifin Corporation  
**Pneumatic Division**  
 8676 E. M89  
 Richland, MI 49083 USA  
 Tel: 877 321 4PDN



Applications Engineering: [pdn.technical@support.parker.com](mailto:pdn.technical@support.parker.com)  
 Customer Support: [pdncustsvc@parker.com](mailto:pdncustsvc@parker.com)