

*Robertshaw*®

**Universal Air Pressure  
Sensing Switch  
Uni-Line® Product Knowledge**

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Controls

# Subjects We Will Cover In This Session

- Applications
- Terms and Acronyms
- Product Description
- Features
- Manufacturer Comparison
- Cross Reference
- Literature
- Website
- Q&A

# Typical Air Switch Sensing Applications

## Monitors Air Pressure

- Conditioned Air Filters
- Defrost Cycle in Refrigeration Coils
- Gas-Fired Units with Draft from the Blower
- Air-Supported Structures and Enclosures
- Exhaust Fans and Fume Hoods



# Acronyms

NEMA	=	National Electrical Manufacturers Association
NC	=	Normally Closed (switch)
NO	=	Normally Open (switch)
PSI	=	Pounds per Square Inch
SPST	=	Single Pole Single Throw
SPDT	=	Single Pole Double Throw
WC	=	Water Column in Inches

# Technical Concepts

Reliable devices to remotely sense operation of

- Fans
- Blowers

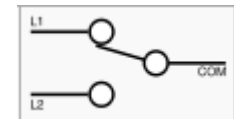
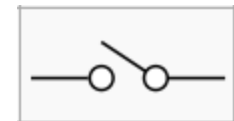
Senses positive, negative or differential air pressure

- Maximum pressure 10.0" Water Column

Adjustable air sensing actuates internal switch

Types of switches

- SPST = Single Pole Single Throw
- SPDT = Single Pole Double Throw



# Why Robertshaw® Universal Air Pressure Sensing Switch?

- Robertshaw line up of air pressure switches is *Simply the Right Choice™* for flexibility, reliability, accuracy and ease-of-use
- With a wide array of applications, the 2374-510 kit replaces hundreds of other manufacturers' air pressure switch models
- HVAC contractors now have a one-stop option to meet all their air pressure switch needs
- This latest addition to the Robertshaw product line includes:
  - High impact polycarbonate housing
  - Works in a variety of harsh conditions
  - Snap-acting switch with three male 90° quick-connect terminals
  - Field adjustable set points ranging from 0.10" to 10" WC
  - Installers use 10-650 sensing probe kit for hard-to-reach air streams

# Universal Air Pressure Sensing Switch

- Sensing switch 2374-510 is field adjustable
- Relatively insensitive to temperature
  - Range includes -40°F to 190°F
- Operates at 120 or 277 VAC
- Detection of static pressure drop across filters and coils
- Air switches can turn ON or OFF the following
  - Blowers
  - Exhaust Fans
  - Electronic air cleaners
  - Remote status indicators
  - Alarms
  - Control circuits
  - And more



# Universal Air Pressure Sensing Switch

Sensing Switch 2374-510 contractor kit includes the following:

- Calibration Springs (5 options within 0.05" to 10.0" WC)
- Orifice Restrictors (4 options)
- Mounting Brackets (2 options)
- Calibration adjustment tool (hex wrench)

Easy installation and calibration

2 Year Warranty

Housing is made of plastic to compete on price

# Sensing Probe Accessory Kit

When extended tube is needed for hard-to-reach air streams use Robertshaw® Sensing Probe Kit **10-650**

Probes are used in conjunction with the air switch as a means to sense air pressure in the appliance

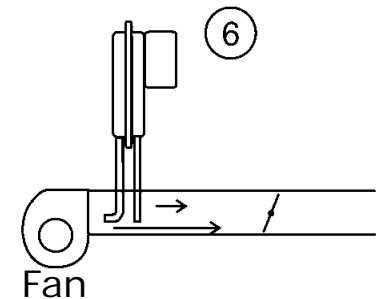
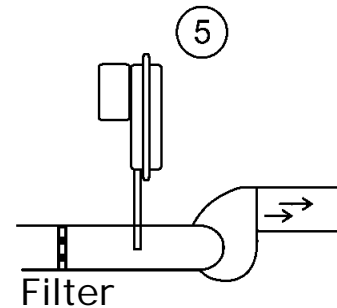
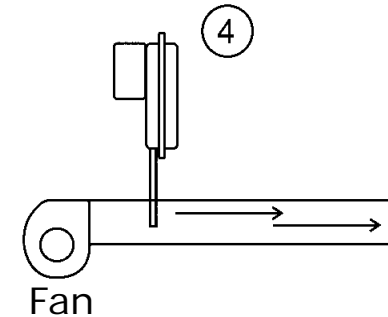
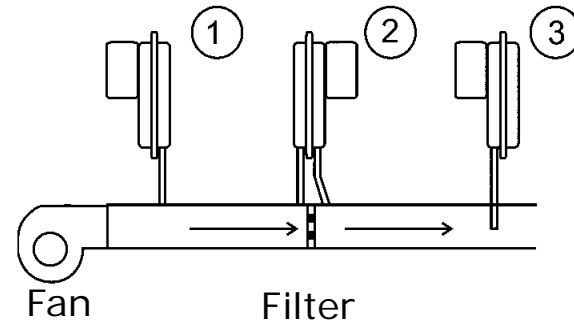
Probes are mounted in:

- Ducts
- Intakes
- Vents
- Pressure Control Rooms
- All HVAC Applications



## Typical Applications For Sensing Switch and Sensing Probe Kit

1	Positive static pressure increases as the filter gets dirty.
2*	Differential across filter changes as filter gets dirty.
3	Flow is reduced as filter gets dirty.
4	Fan operation or air flow with little or no static pressure.
5	Negative pressure increases as the filter gets dirty.
6*	Fan operation and true air flow with varying amounts of static pressure. Probes must be perpendicular to the air flow.



\* Applications uses two Sensing Probe Kits

# Quiz Question #1





SPDT switch stands for what?

1. Single Pole Differential Terminal
2. Single Polarity Dip Termination
3. Single Pole Double Throw
4. Single Pole Single Throw

# Manufacturers and Distributors

- Robertshaw® 2374 series
- Honeywell® IS2 series
- Micro Pneumatics Logic® MPL 9370 series
- Endura® ES2000 series
- White-Rodgers®
- Siemens®

# Manufacturer Comparison

Features	 <b>Robertshaw®</b>	 <b>Honeywell®</b>	 <b>MPL®</b>	 <b>Endura®</b>
<b>Series</b>	2374-510	IS2	MPL9370	ES2000
<b>Complete Installation Kit</b>	✓	✗	✗	✗
<b>Full Line of Replacement Switches</b>	✓	✗	✗	✗
<b>Self Cleaning Contacts</b>	✓	✗	✗	✗
<b>Wider Operating Range</b>	✓ (up to 10.0 " W.C.)	✗ (3" W.C.)	✗ (2" W.C.)	✗ (5" W.C.)

Product cross reference available  
online at [www.uni-line.com](http://www.uni-line.com)

# Pros and Cons

Pros and Cons	Robertshaw®	Competition
<b>Complete Installation Kit</b>	Easier Installation with all Necessary Hardware and Tools Included	Incomplete Kit Complicates Installation
<b>Full Line of Replacement Switches</b>	One Source for All Major Replacements with Cross Reference Charts	Multiple Suppliers Needed and Possible Obsolescence
<b>Self Cleaning Contacts</b>	Helps Resist Welding from Arcing	Switch May Stick and Need Service Calls
<b>Wider Operating Range</b>	Rated for More Applications	Rated for Fewer Applications
<b>US Jobs</b>	Made in the USA	Majority Imported

# Value Proposition

Value Proposition	Wholesaler / Distributor	Contractor	End-User
<b>Complete Installation Kit</b>	"One Stop Shop" Offering Includes Hardware & Tool	"Grab and Go" No Need to Wonder About Right Installation Tools	"Hi and Bye" Installer Minimizes Disruption
<b>Full Line of Replacement Switches</b>	Limits Need for Carrying Several Suppliers	Full Selection From One Source	Installer has Right Part Regardless of Application
<b>Self Cleaning Contact</b>	Upsell Reliability Opportunity	Limits Call Backs	Reliable Operation to Minimize Future Service Calls
<b>Wider Operating Range</b>	Additional Feature to Sell	Wider Range of Applications	Quality Product

# Cross Reference For Robertshaw® Air Pressure Sensing Switch

Universal Robertshaw	Existing Robertshaw	Cleveland Controls	Antunes	Grainger	Honeywell	MPL	Endura
2374-510	2374-510	NS2-0000-08		6XPX7	IS2 SERIES	MPL 9370 SERIES	ES2000 SERIES
	2374-495	RSS-495-037	SMM-ALL	3ZM96	6000 SERIES 10000 SERIES		
	2374-498	RSS-498-038	SMM-ALL	3ZM97	6000 SERIES 10000 SERIES		

Cross Reference available online at

<http://www.uni-line.com/modules/xref/xrefsearch.aspx>

# Sales Materials

## Sell Sheets with Cross Reference Charts

- Part Number in English: 150-2314



**UNIVERSAL  
2374-510  
10-650 AIR PRESSURE  
SENSING SWITCH  
AND PROBE**



2374-510  
Universal Air Pressure  
Sensing Switch Kit



10-650  
Sensing Probe Kit

**Universal Solutions**

The Robertshaw offering of air pressure switches is *Simply the Right Choice™* for flexibility, reliability, accuracy and ease-of-use.

With a wide array of applications, the 2374-510 kit replaces hundreds of other manufacturers' air pressure switch models. HVAC contractors now have a one-stop option to meet all their air pressure switch needs.

This latest addition to the Robertshaw product line includes:

- High impact polycarbonate housing
- Works in a variety of harsh conditions
- Snap-acting switch with three male 90° quick connect terminals
- Field adjustable set points ranging from 0.10" to 10" W.C.
- Installer can use 10-650 sensing probe kit for hard to reach air streams

**Features and Benefits**

The new Robertshaw® Universal Air Pressure Sensing Switch and optional probe kit add a new level of flexibility and options to our pressure sensing switch offering. The available probe adds greater installation and application flexibility by allowing "remote" installation of the switch by significantly extending the reach of your air source.

- The new Universal Air Pressure Sensing Switch has field adjustable set points using the included adjustment tool.
- The Switch comes in a contractor kit that includes the hardware and replacement hose.
- Like other Robertshaw Air Pressure Sensing Switches, this switch is NEMA rated and is practically insensitive to pressure change with an operating range of -40 to +190°F (-40 to +88°C).
- The available Sensing Probe Kit works with the Universal Switch as well as the rest of the Robertshaw air pressure switch products to provide a form-fit extension from your air source to the switch, limiting the need to install the switch directly on the air source.

**Typical Applications**

- Conditioned air filters that accumulate particulate matter used to sense the differential pressure or airflow drop across the filter.
- Defrost cycle is initiated by sensing differential pressure or airflow drop across the refrigeration coils when they ice.
- On gas-fired units, the switch senses draft down from the blower; switch actuation allows ignition start-up or system shutdown upon insufficient draft.
- On air-supported structures and enclosures, sensing switches ensure proper inflation or internal pressure; switch actuation controls the blower to maintain pressure.
- Exhaust fans and fume hoods employ switches to sense draft down from the exhaust fan; switch actuation signals condition upon fan failure of insufficient draft.


Robertshaw - *Simply the Right Choice™*

2374-510  
KIT Contents:  
Air Pressure Sensing Switch  
Calibration springs (5 options)  
Cut-off flow (4 options)  
Mounting brackets (2 options)  
Calibration tool (hex wrench)

10-650  
KIT Contents:  
Universal probe, 7"  
Mounting bracket  
Flange-locking set screw  
3" vinyl tubing  
Flange-mounting screw  
SIP-on adapter

**2**  
Year  
Limited  
Warranty

An ISO 9001 - 2008 Certified Company



**UNIVERSAL  
2374-510  
10-650 AIR PRESSURE  
SENSING SWITCH  
AND PROBE**

**Robertshaw 2374-510 Cross Reference**

Universal Robertshaw	Existing Robertshaw	Cleveland Controls	Arltans	Granger	Honeywell	MPL	Endura
2374-510	2374-510	NS2-0000-00		6XP7	IS2 SERIES	MPL 9570 SERIES	ES2000 SERIES
	2374-495	RSS-495-037	SMM-ALL	3ZM96	6000 SERIES 10000 SERIES		
	2374-498	RSS-498-038	SMM-ALL	3ZM97	6000 SERIES 10000 SERIES		

**Typical Applications For Sensing Switch and Sensing Probe Kit**

- 1 Positive static pressure increases as the filter gets dirty.
- 2\* Differential across filter changes as filter gets dirty.
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
\* Applications uses two (2) Sensing Probe Kits

**Mechanical Specifications**

Mounting Position: Vertical  
Set Point: Customer Set  
Measured Media: Air  
Operating Temperature Range: -40 to 190°F (-40 to 87.8°C)  
Life: 100,000 Cycles Minimum at UL Test Parameters  
Overpressure: 14" W.C.  
Sample Line Connection:  
Straight Type for Use With 3/16" Flexible Rubber Tubing

**Electrical Specifications**

Silver Contacts:  
SPDT, SPST Electrical Load: 1/10 HP @ 120 to 277 VAC;  
28VA Pilot Duty @ 24VAC; 125VA Pilot Duty @ 120 VAC  
SPST Electrical Load: 5 Amps Resistive @ 24, 120 to 277 VAC

Terminal Connections:  
1/4" X .032 Quick Connect Terminals  
Switching Action: Change Contact Position on Customer Setting  
Contact Arrangement: SPDT  
Position of Contacts Before Pressure is Applied: 

Uni-Line Part No.	Description	Setpoint Range	Switch	Probe Length
2374-510	Universal Air Pressure Sensing Switch Kit	0.10" to 10.0" W.C.	SPDT	
10-650	Sensing Probe Kit			7"

INVENSENSYS  
Controls

191 E. North Avenue  
Cedar Rapids, Iowa 52401 USA  
Customer Service Telephone: 1.800.254.8555  
Customer Service Fax: 319.462.9244  
INVENSENSYS@INVENSENSYS.COM

The Technical Service  
Telephone: 1.800.445.2288  
Telephone: 319.267.7244  
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Cooking		
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Time and Energy Controls		
Service Products		

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Cross reference

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## Telephone:

Technical Service 1-800-445-8299

Technical Service Fax 1-630-260-7294

Customer Service 1-800-304-6563

Customer Service Fax 1-800-426-0804

## Website:

Uni-Line® Catalog Website: [www.Uni-Line.com](http://www.Uni-Line.com)

Cross Reference Website: [www.uni-line.com/modules/xref/xrefsearch.aspx](http://www.uni-line.com/modules/xref/xrefsearch.aspx)

## General Information Websites for:

Robertshaw®, Paragon®, Eliwell™, Ranco®, and Publication Zone®

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[www.RobertshawTstats.com](http://www.RobertshawTstats.com)

[www.ToolBox.InvensysControls.com](http://www.ToolBox.InvensysControls.com)



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