

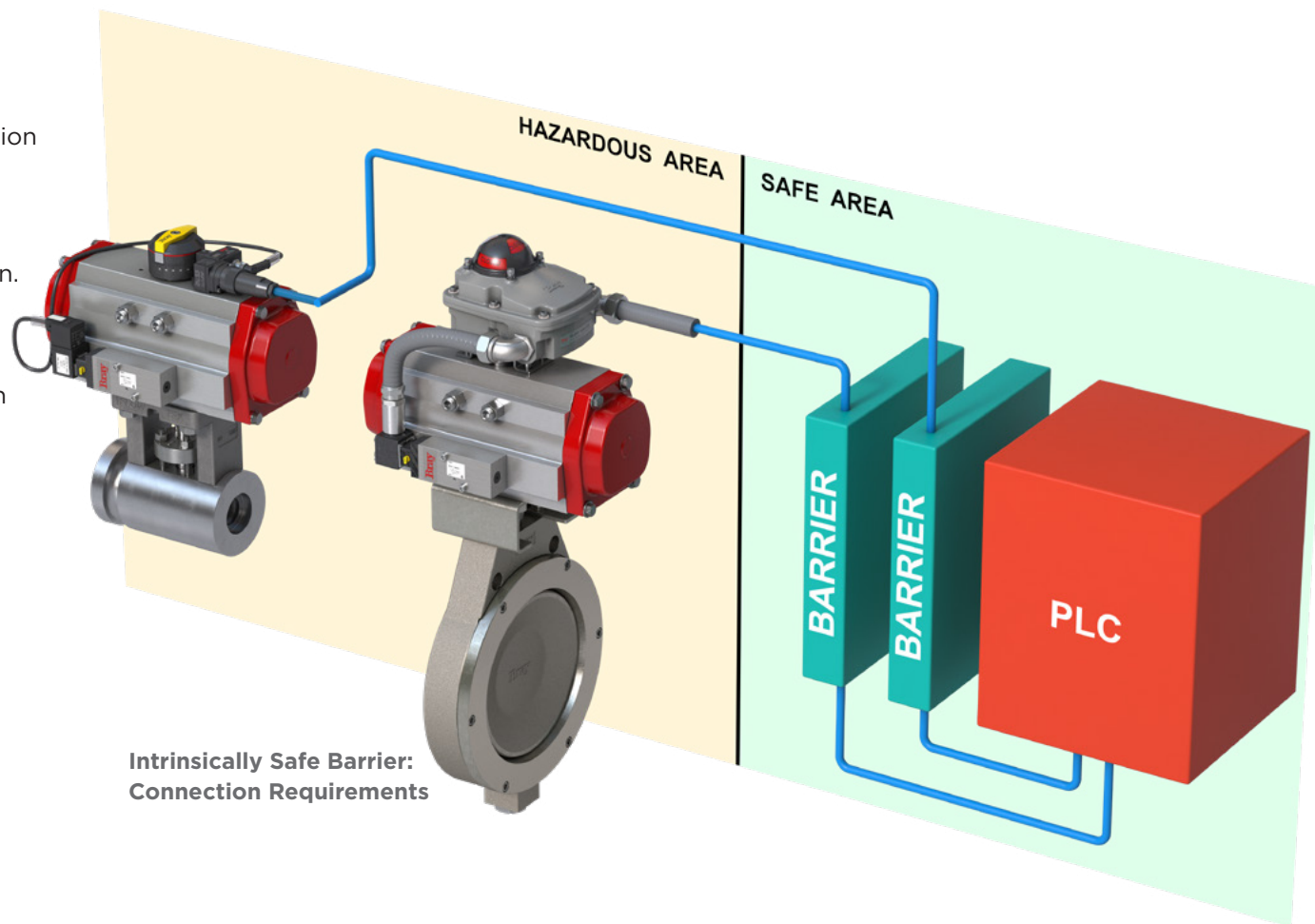
## SELECTION GUIDE

### INTRINSICALLY SAFE PACKAGES FOR VALVE STATUS MONITORING



When specifying electronics in hazardous areas, it is important to ensure the device is equipped with the correct protection type. For some customers, the **intrinsically safe** protection type can be a cost effective, compact solution. Designed for safe operation of electrical equipment in hazardous areas, this protection technique limits the energy (electrical and thermal) available for ignition.

The success of intrinsically safe certification lies in choosing the right supporting components to meet the low-voltage requirements. This guide will help to outline some of Bray's common packages.

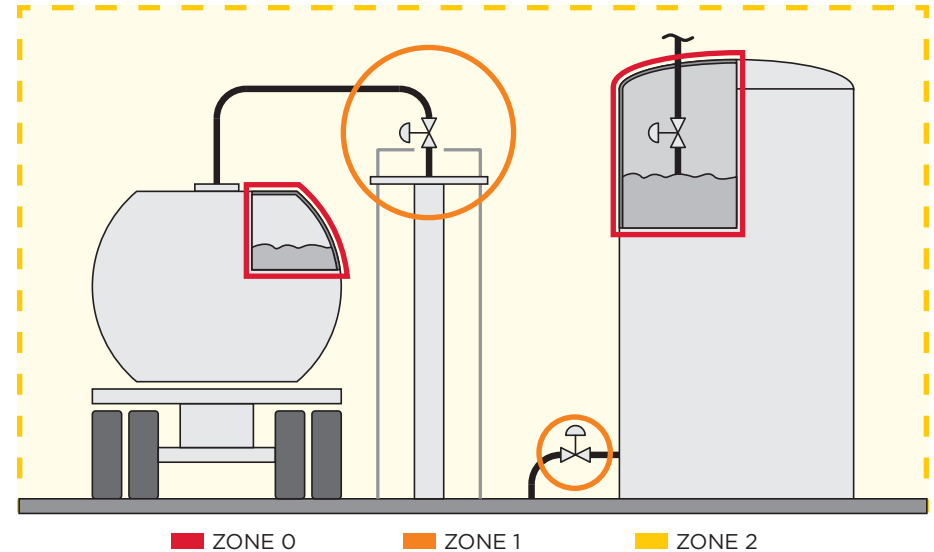


**HAZARDOUS LOCATION CLASSIFICATIONS**

NEC 500	
<b>PROBABILITY OF HAZARDOUS MATERIAL</b>	
<b>DIVISION 1</b> Explosive atmosphere is <b>continually</b> or <b>likely</b> present.	<b>DIVISION 2</b> Explosive atmosphere is <b>not likely</b> present.
<b>NATURE OF HAZARDOUS MATERIAL</b>	
<b>CLASS I – GASES &amp; VAPORS</b>	
<b>DIVISION 1</b>	<b>DIVISION 2</b>
GROUP A   Acetylene	
GROUP B   Hydrogen	
GROUP C   Ethylene	
GROUP D   Propane	
<b>CLASS II – DUST</b>	
<b>DIVISION 1</b>	<b>DIVISION 2</b>
GROUP E   Metal Dusts	
GROUP F   Carbon-based Dusts	
GROUP G   Non-conductive Dusts	
<b>CLASS III – FIBERS &amp; FLYINGS</b>	

ATEX / IECEx		
<b>PROBABILITY OF HAZARDOUS MATERIAL</b>		
<b>ZONE 0 / 20</b> Explosive atmosphere is <b>continually</b> present.	<b>ZONE 1 / 21</b> Explosive atmosphere is <b>likely</b> present.	<b>ZONE 2 / 22</b> Explosive atmosphere is <b>not likely</b> present.
<b>NATURE OF HAZARDOUS MATERIAL</b>		
<b>G – GASES &amp; VAPORS</b>		
<b>ZONE 0</b>	<b>ZONE 1</b>	<b>ZONE 2</b>
IIC   Acetylene & Hydrogen		
IIB+H2   Hydrogen		
IIB   Ethylene		
IIA   Propane		
<b>D – DUST</b>		
<b>ZONE 20</b>	<b>ZONE 21</b>	<b>ZONE 22</b>
IIIC   Conductive Dusts		
IIIB   Non-conductive Dusts		
IIIA   Fibers		

**TYPICAL HAZARDOUS GASES & VAPORS APPLICATION**



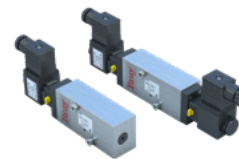
**INTRINSICALLY SAFE PRODUCTS<sup>1,2</sup> | Electrically Limited**



**SERIES 6A POSITIONER**  
**NEC**  
 CLASS I DIV 1 A,B,C,D  
**ATEX/IECEx**  
 G ZONE 1 IIC  
 D ZONE 21 IIIC



**SERIES 5A / 5B VALVE STATUS MONITOR**  
**NEC**  
 CLASS I DIV 1 A,B,C,D  
 CLASS II/III DIV 1 E,F,G  
**ATEX/IECEx**  
 G ZONE 0 IIC



**SERIES 60 SOLENOID**  
**NEC**  
 CLASS I DIV 1 A,B,C,D  
 CLASS II DIV 1 E,F,G



**SERIES 54 PROXIMITY SENSOR**  
**NEC**  
 CLASS I DIV 1 A,B,C,D  
 CLASS II DIV 1 E,F,G  
**ATEX/IECEx**  
 G ZONE 0 IIC

**NOTES:**  
**1** For full rating specifications, see product literature.  
**2** Order with appropriate intrinsically safe barrier.

# NAMUR Sensor + Adjustable Activator + Optional Solenoid

## INTRINSICALLY SAFE



### 1 NAMUR SENSOR

DESCRIPTION	PART NUMBER
I.S. Proximity Sensor	540003-71104533



### 2 ACTIVATOR (Choose One)

DESCRIPTION	PART NUMBER
S92/93 Sizes 063-128 Imperial	54063A-14800536
S92/93 Sizes 160-210 Imperial	54160A-14800536
S92/93 Sizes 063-128 Metric	54063A-14850536
S92/93 Sizes 160-255 Metric	54160A-14850536
S98 Metric	54063A-14850536
S92/93 Sizes 063-128 Imperial	54063C-14800536
S92/93 Sizes 160 Imperial	54160C-14800536
S92/93 Sizes 210 Imperial	54210C-14800536
S92/93 Sizes 063-128 Metric	54063C-14850536
S92/93 Sizes 160 Metric	54160C-14850536
S92/93 Sizes 210-255 Metric	54210C-14850536
S98 Metric	54063C-14850536



### 3 BARRIER<sup>1</sup> (Optional)

DESCRIPTION	PART NUMBER
Intrinsically Safe Barrier 24V	090006-71134533



### S92/S93 RACK & PINION ACTUATOR

OR

### S98 SCOTCH YOKE ACTUATOR<sup>2</sup>

OR

### NO SOLENOID

#### 4 SOLENOID

DESCRIPTION	PART NUMBER
I.S. 24VDC	600250-21526536

#### 4 SOLENOID (Choose One)

DESCRIPTION	PART NUMBER
I.S. 24VDC SR	VSG-3421-D14-HCC-XISX6-D024
I.S. 24VDC DA	VSG-4422-D14-HCC-XISX6-D024

#### 4 SOLENOID

NONE	
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#### 5 CONNECTOR

DESCRIPTION	PART NUMBER
Y-Connectors	600250-23662536

#### 5 CONNECTOR

NONE	
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#### 5 CONNECTOR

DESCRIPTION	PART NUMBER
4 pin M12 to Flying Lead	090004-76145534

#### 6 CORDSET

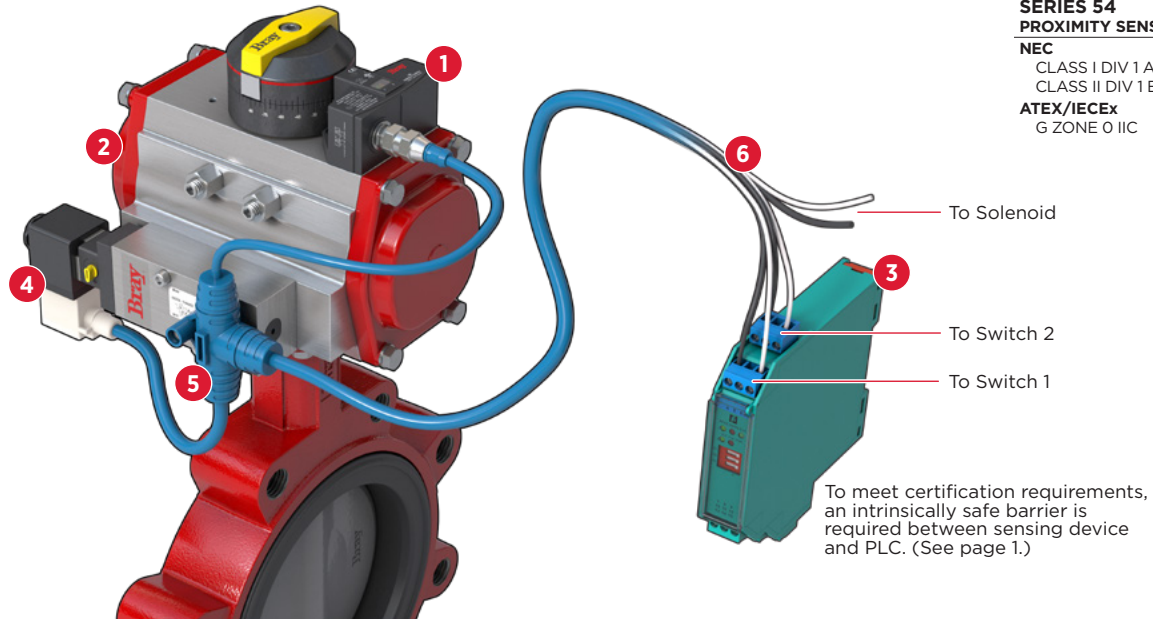
DESCRIPTION	PART NUMBER
6 pin M12 to Flying Lead	090004-76152534

#### 6 CORDSET

DESCRIPTION	PART NUMBER
6 pin M12 to Flying Lead	090004-76152534

#### 6 CORDSET

NONE	
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**SERIES 54**  
**PROXIMITY SENSOR**  
 NEC  
 CLASS I DIV 1 A,B,C,D  
 CLASS II DIV 1 E,F,G  
 ATEX/IECEx  
 G ZONE 0 IIC

#### NOTES:

- 1 An intrinsically safe barrier is required to meet certification requirements. (See page 1.)
- 2 Consult factory mounting.
- 3 For 4 switches, change "2" after H to "4".
- 4 Refer to specific product technical manuals for additional details.

# NAMUR Sensor + Adjustable Activator + Optional Solenoid + Conduit Connections

## INTRINSICALLY SAFE



### 1 NAMUR SENSOR

DESCRIPTION	PART NUMBER
I.S. Proximity Sensor	540013-71104533



### 2 ACTIVATOR (Choose One)

DESCRIPTION	PART NUMBER
S92/93 Sizes 063-128 Imperial	54063A-14800536
S92/93 Sizes 160-210 Imperial	54160A-14800536
S92/93 Sizes 063-128 Metric	54063A-14850536
S92/93 Sizes 160-255 Metric	54160A-14850536
S98 Metric	54063A-14850536
S92/93 Sizes 063-128 Imperial	54063C-14800536
S92/93 Sizes 160 Imperial	54160C-14800536
S92/93 Sizes 210 Imperial	54210C-14800536
S92/93 Sizes 063-128 Metric	54063C-14850536
S92/93 Sizes 160 Metric	54160C-14850536
S92/93 Sizes 210-255 Metric	54210C-14850536
S98 Metric	54063C-14850536



### 3 BARRIER<sup>1</sup> (Optional)

DESCRIPTION	PART NUMBER
Intrinsically Safe Barrier 24V	090006-71134533



### S92/S93 RACK & PINION ACTUATOR

OR

### S98 SCOTCH YOKE ACTUATOR<sup>2</sup>

OR

### NO SOLENOID

### 4 SOLENOID

DESCRIPTION	PART NUMBER
I.S. 24VDC	600250-21526536
I.S. Gland	600251-71106533

### 4 SOLENOID (Choose One)

DESCRIPTION	PART NUMBER
I.S. 24VDC SR	VSG-3421-D14-HCC-XISX6-D024
I.S. 24VDC DA	VSG-4422-D14-HCC-XISX6-D024

### 4 SOLENOID

NONE
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### 5 PREWIRE KIT

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### 5 PREWIRE KIT

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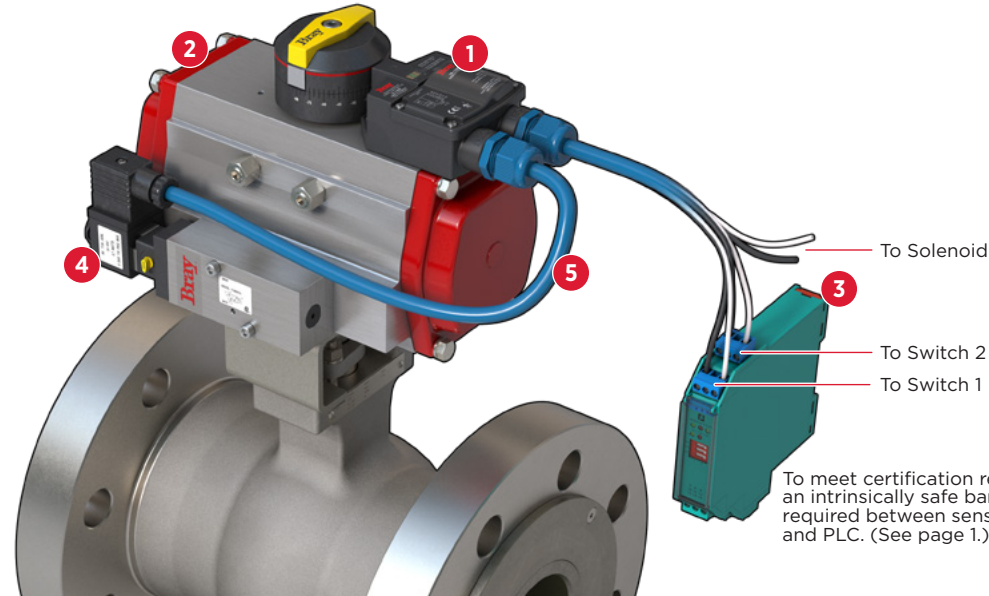
### 5 PREWIRE KIT

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#### SERIES 54 PROXIMITY SENSOR

NEC  
CLASS I DIV 1 A,B,C,D  
CLASS II DIV 1 E,F,G  
ATEX/IECEx  
G ZONE 0 IIC



#### NOTES:

1 An intrinsically safe barrier is required to meet certification requirements. (See page 1.)

2 Consult factory mounting.

3 For 4 switches, change "2" after H to "4".

4 Refer to specific product technical manuals for additional details.

# NAMUR Sensor + Adjustable Activator + Optional Solenoid + S-Connector

**INTRINSICALLY SAFE**



## 1 NAMUR SENSOR

DESCRIPTION	PART NUMBER
I.S. Proximity Sensor	540043-71104533



## 2 CORDSET

DESCRIPTION	PART NUMBER
Cordset Rd24 Pin	090700-71155517



## 3 ACTIVATOR (Choose One)

DESCRIPTION	PART NUMBER
S92/93 Sizes 063-128 Imperial	54063A-14800536
S92/93 Sizes 160-210 Imperial	54160A-14800536
S92/93 Sizes 063-128 Metric	54063A-14850536
S92/93 Sizes 160-255 Metric	54160A-14850536
S98 Metric	54063A-14850536
S92/93 Sizes 063-128 Imperial	54063C-14800536
S92/93 Sizes 160-210 Imperial	54160C-14800536
S92/93 Sizes 063-128 Metric	54063C-14850536
S92/93 Sizes 160-255 Metric	54160C-14850536
S98 Metric	54063C-14850536

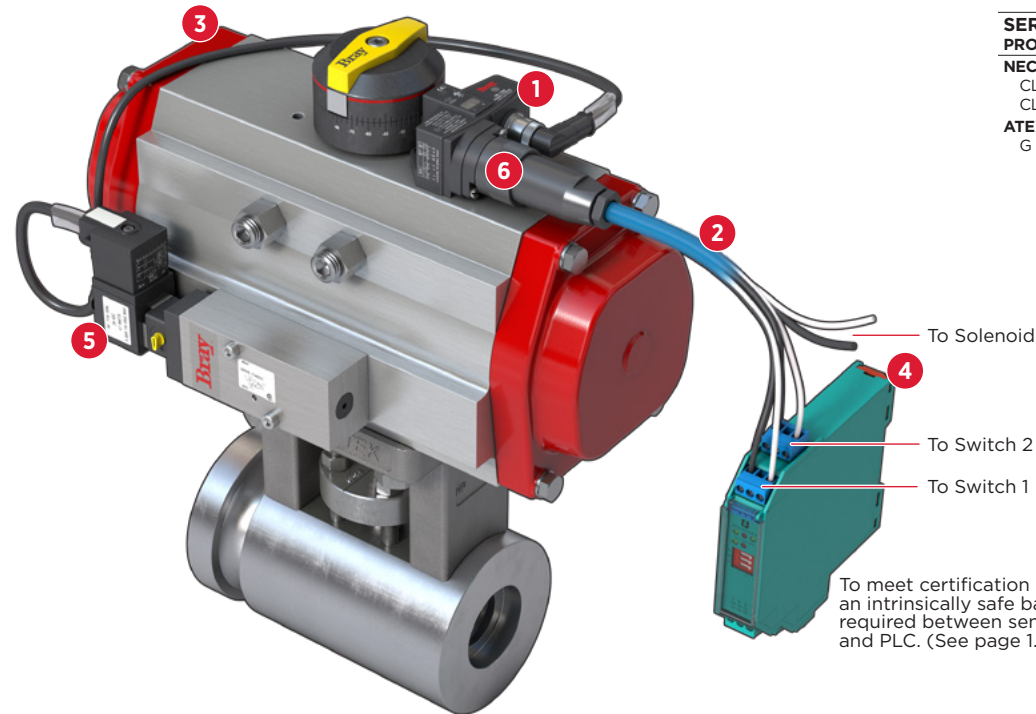


## 4 BARRIER<sup>1</sup> (Optional)

DESCRIPTION	PART NUMBER
Intrinsically Safe Barrier 24V	090006-71134533



**SERIES 54  
PROXIMITY SENSOR**  
**NEC**  
 CLASS I DIV 1 A,B,C,D  
 CLASS II DIV 1 E,F,G  
**ATEX/IECEx**  
 G ZONE 0 IIC



To meet certification requirements, an intrinsically safe barrier is required between sensing device and PLC. (See page 1.)

### S92/S93 RACK & PINION ACTUATOR

OR

### S98 SCOTCH YOKE ACTUATOR<sup>2</sup>

OR

### NO SOLENOID

## 5 SOLENOID

DESCRIPTION	PART NUMBER
I.S. 24VDC	600250-21526536

## 5 SOLENOID (Choose One)

DESCRIPTION	PART NUMBER
I.S. 24VDC SR	VSG-3421-D14-HCC-XISX6-D024
I.S. 24VDC DA	VSG-4422-D14-HCC-XISX6-D024

## 5 SOLENOID

NONE
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## 6 CONNECTOR

DESCRIPTION	PART NUMBER
S-Connector	090001-76160882

## 6 CONNECTOR

DESCRIPTION	PART NUMBER
S-Connector	090001-76160882

## 6 CONNECTOR

NONE
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### NOTES:

1 An intrinsically safe barrier is required to meet certification requirements. (See page 1.)

2 Consult factory mounting.

3 For 4 switches, change "2" after H to "4".

4 Refer to specific product technical manuals for additional details.



# NAMUR Valve Status Monitor + 2 Switches + Optional Solenoid + Connector

## INTRINSICALLY SAFE



### 1 NAMUR VALVE STATUS MONITOR

DESCRIPTION	PART NUMBER
5A 2 Prox Switch Aluminum	5A0000-126H2536 <sup>3</sup>
5B 2 Prox Switch Aluminum	5B0000-126H2536 <sup>3</sup>
5A 2 Prox Switch Resin	5A0000-126H2517 <sup>3</sup>
5B 2 Prox Switch Resin	5B0000-126H2517 <sup>3</sup>



### 2 MOUNTING (Choose One)

DESCRIPTION	PART NUMBER
S92/93 Sizes 063-128 Imperial	5B0000-22600534
S92/93 Sizes 160-210 Imperial	5B0000-22601534
S92/93 Sizes 063-128 Metric	5B0000-22650534
S92/93 Sizes 160-255 Metric	5B0000-22651534
S98 Metric	5B0000-22630534



### 3 BARRIER<sup>1</sup> (Optional)

DESCRIPTION	PART NUMBER
Intrinsically Safe Barrier 24V	090006-71134533



### S92/S93 RACK & PINION ACTUATOR

#### 4 SOLENOID

DESCRIPTION	PART NUMBER
I.S. 24VDC	600250-21526536

#### 5 CONNECTOR

DESCRIPTION
Conduit

OR

### S98 SCOTCH YOKE ACTUATOR<sup>2</sup>

#### 4 SOLENOID (Choose One)

DESCRIPTION	PART NUMBER
I.S. 24VDC SR	VSG-3421-D14-HCC-XISX6-D024
I.S. 24VDC DA	VSG-4422-D14-HCC-XISX6-D024

#### 5 CONNECTOR

DESCRIPTION
Conduit

OR

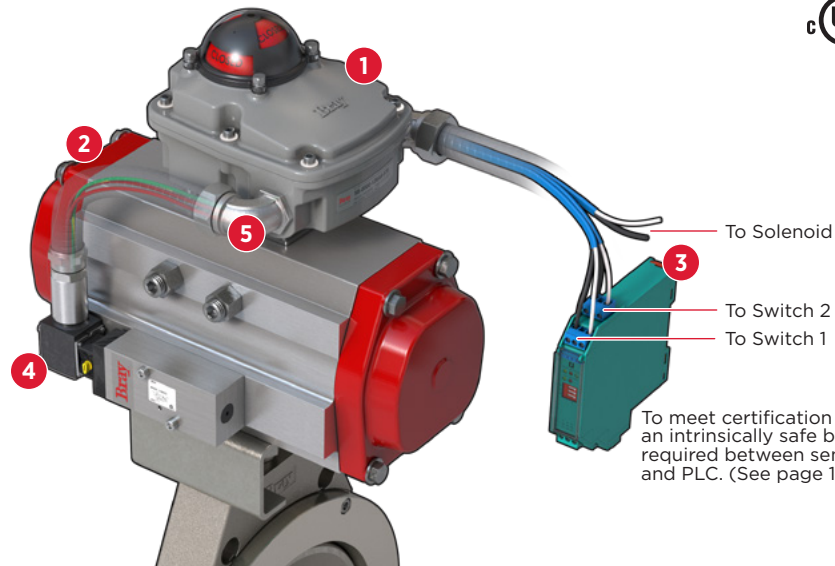
### NO SOLENOID

#### 4 SOLENOID

NONE
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#### 5 CONNECTOR

NONE
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**SERIES 5A / 5B  
VALVE STATUS MONITOR**  
**NEC**  
 CLASS I DIV 1 A,B,C,D  
 CLASS II/III DIV 1 E,F,G  
**ATEX/IECEx**  
 G ZONE 0 IIC

To meet certification requirements, an intrinsically safe barrier is required between sensing device and PLC. (See page 1.)

To Solenoid

To Switch 2

To Switch 1

#### NOTES:

1 An intrinsically safe barrier is required to meet certification requirements. (See page 1.)

2 Consult factory mounting.

3 For 4 switches, change "2" after H to "4".

4 Refer to specific product technical manuals for additional details.



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SINCE 1986, BRAY HAS PROVIDED FLOW CONTROL SOLUTIONS FOR A VARIETY OF INDUSTRIES AROUND THE WORLD.

VISIT **BRAY.COM** TO LEARN MORE ABOUT BRAY PRODUCTS AND LOCATIONS NEAR YOU.

## **HEADQUARTERS**

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