



LOW  
POWER  
CONTROL  
MONITOR

## Quantum Low Power Control Monitor

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QUANTUM

# Quantum®

## Design Features

Addressing the increasing demand for low power monitoring and control of automated process valves, the Westlock Quantum LP® integrates position sensors, low energy solenoid valves, and fugitive emissions monitors into a single unit meeting the specific standards set by international approval agencies.



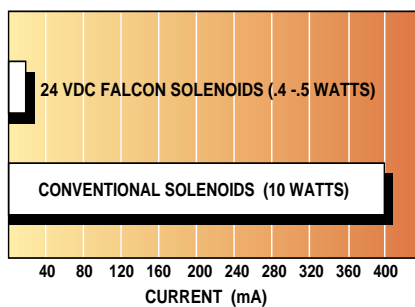
Engineered and certified to meet NEMA 4, 4x and hazardous location requirements in Division 1 and 2 areas, the Quantum LP® elevates the integration of sensors and controls to a new level.

### Low Power Control and Position Monitoring

The Westlock Falcon™ Series of solenoid valves is specifically engineered to address low power valve actuation requirements. When interfaced with computer-based process control systems requiring

low power energy supplies, the utilization of Falcon™ solenoids translates into immediate economic benefits. Required power levels for actuation control are efficiently reduced to 5% of the energy required for operation of conventional valves. Integrated within the Quantum housing and capable of operating in any position, Falcon™ solenoids are available in General Purpose, Division 2 (nonincendive) and Division 1 & 2 (explosionproof & intrinsically safe) configurations. Both 3-way for single acting and 4-way for double acting actuators carry standard Cv ratings of .3, .5, 1.2 and 3.5.

A wide range of sensors are available for monitoring valve position. Mechanical switches are the least expensive and possess SPDT and DPDT capability. Magnum® sensors, hermetically sealed against the intrusion of explosive gases and liquids, provide maximum resistance against moisture and corrosion. Solid state sensors are internationally approved for intrinsically safe applications as are both Magnum® and mechanical sensors under their classification as "simple apparatus" If required, a complete range of resistive and current transmitters provide full range monitoring of valve position.



*Required power levels for actuation control are efficiently reduced to 5% of the energy required for operation of conventional valves.*

## LOW POWER MONITORING AND CONTROL OF AUTOMATED PROCESS VALVES

**General Purpose**  
NEMA 4, 4x

**Nonincendive**

NEMA 4, 4x

Class I, Div. 2, Grps. A, B, C & D,  
Class II, Div. 2, Grps. F & G

**Explosionproof**

NEMA 4, 4x, 7, 9

Class I, Grps. B, C & D

Class II, Grps. E, F & G, Div. 1 & 2

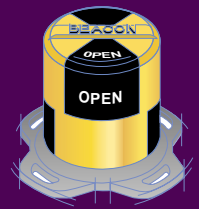
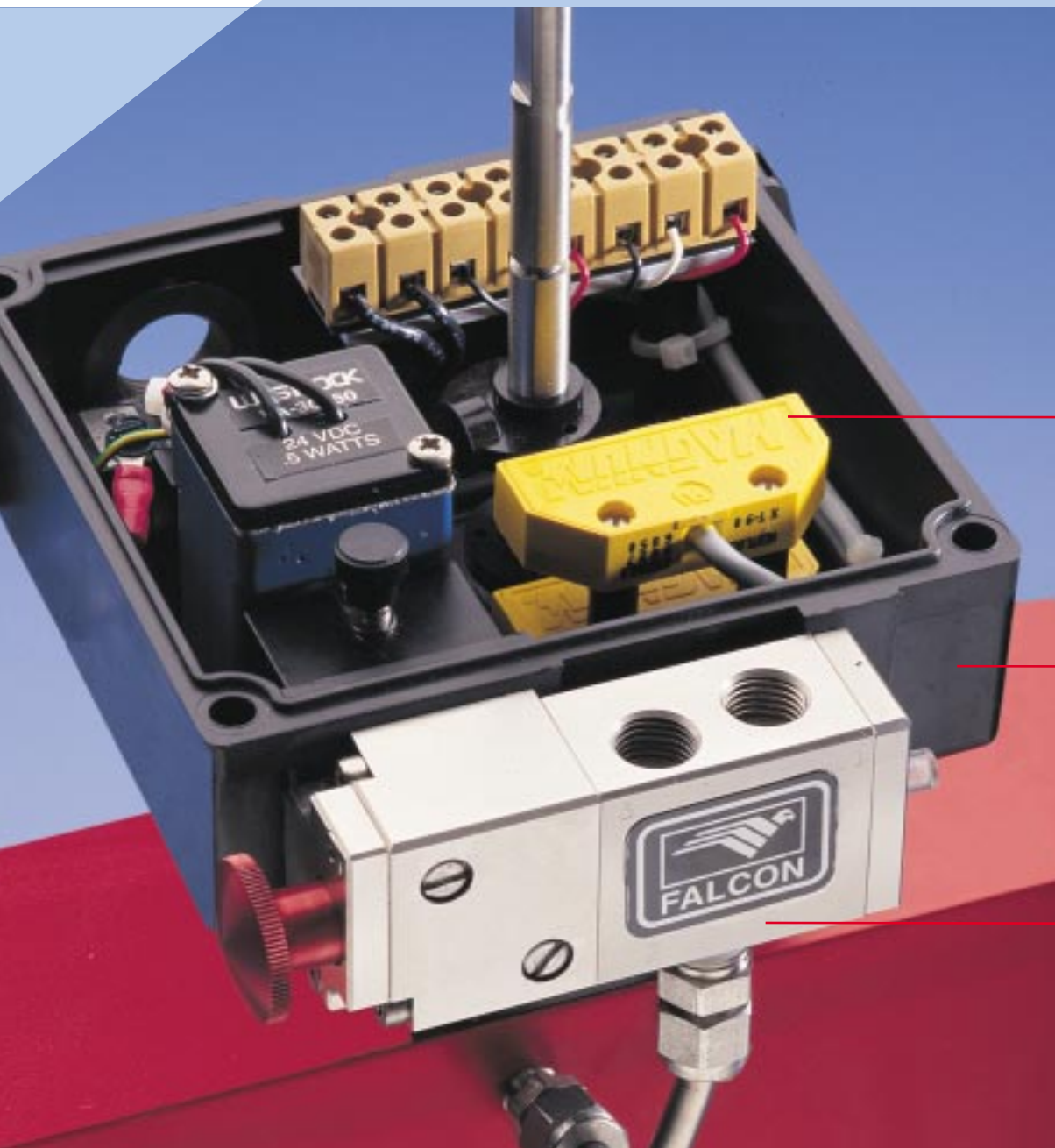
**Intrinsically Safe**

NEMA 4, 4x

Class I, Grps. A, B, C & D,

Class II, Grps. E, F & G, Div. 1 & 2





**Visual Display**  
*Valve performance is mechanically confirmed by high visibility local position monitors.*

**Position Sensors**  
*Position sensors available in mechanical, proximity and solid state configurations.*

**Enclosures**  
*High-impact, engineered resin, aluminum, or stainless steel enclosures operate within all harsh environments.*

**Low Power Solenoid Valve**  
*Falcon solenoid valves are pre-wired and integrated within the Quantum enclosure.*

# QUANTUM® Control Monitor

# Quantum® Enclosures

## Specifically Engineered To Meet All Areas and Groups

The Quantum LP's unique design assures ease of maintenance by allowing rapid coil replacement and enhances safety by isolating the coil from operating personnel. The Quantum enclosure integrates position sensors, low power solenoid valves, and fugitive emissions monitors into a single unit meeting the specific standards set by international approval agencies.

Engineered and certified to meet NEMA 4, 4x and hazardous location requirements in Division 1 and 2 areas, enclosures are available in high impact engineered resin, aluminum, or stainless steel having the capability to operate within all harsh environments



### General Purpose/ Nonincendive/I.S.

#### Aluminum/Engineered Resin

Area Classification: NEMA 4, 4x  
Class I, Groups A, B, C, & D  
Class II, Groups E, F & G  
Division 1 and 2

Conduit Entries: Up to two 3/4" NPT

Terminal Block: Up to 16 contacts



### Dual Coil General Purpose/ Nonincendive/I.S.

#### Aluminum/Engineered Resin

Area Classification: NEMA 4, 4x  
Class I, Groups A, B, C, & D  
Class II, Groups E, F & G  
Division 1 and 2

Conduit Entries: Up to three 3/4" NPT

Terminal Block: Up to 16 contacts



### Explosionproof

#### Aluminum/Stainless Steel

Area Classification:

NEMA 4, 4X, 7, 9

Class I, Groups B, C & D

Class II, Groups E, F, & G

Division 1 and 2

Coating: Double Polyurethane

Conduit Entries: Up to three 3/4" NPT

Terminal Block: Up to 16 contacts



### Dual Coil Explosionproof

#### Aluminum

Area Classification:

NEMA 4, 4X, 7, 9

Class I, Groups C & D

Class II, Groups E, F, & G

Division 1 and 2

Coating: Double Polyurethane

Conduit Entries: Up to three 3/4" NPT

Terminal Block: Up to 16 contacts



Low Power Control Monitor for use in Non-Hazardous Areas

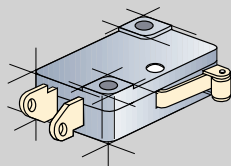
# Quantum® General Purpose

Designed specifically for general purpose applications, position sensors and low-energy Falcon™ solenoid valves are integrated into a single unit adhering to NEMA 4, 4X requirements. Available in engineered resin or aluminum enclosures, the Quantum® standardly houses two SPDT Form C Micro switches and is available with a wide range of integrated solenoid

valves in both three-way and four-way configurations. Falcon solenoid valves are available in a variety of coil voltages and body materials with stainless steel internals as standard. Cv. values range from .3 to 3.5.



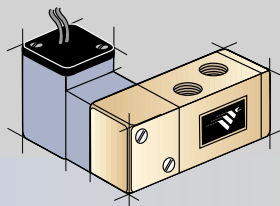
## Standard Sensor Options



## Micro-Switch V3

SPDT Form C, UL, CSA

AMPS	SPDT (V3)		DPDT (Licon)	
	VAC	VDC	AMPS	VAC
15	125		10	125
15	250		10	250
10		24		
.50		125		
.25		250		



## COIL POWER SUPPLY

	COILS			
	24 VDC	120 VAC	125 VDC	220 VAC
Operating Voltage	24 VDC	120 VAC	125 VDC	220 VAC
Wattage	0.5 Watts	4 Watts	0.85 Watts	4 Watts
Operating Current	20 mA	29.5 mA	6.76 mA	19 mA
Coil Resistance	1200 Ohms	610 Ohms	18500 Ohms	2200 Ohms

# Quantum® General Purpose

## AREA CLASSIFICATIONS

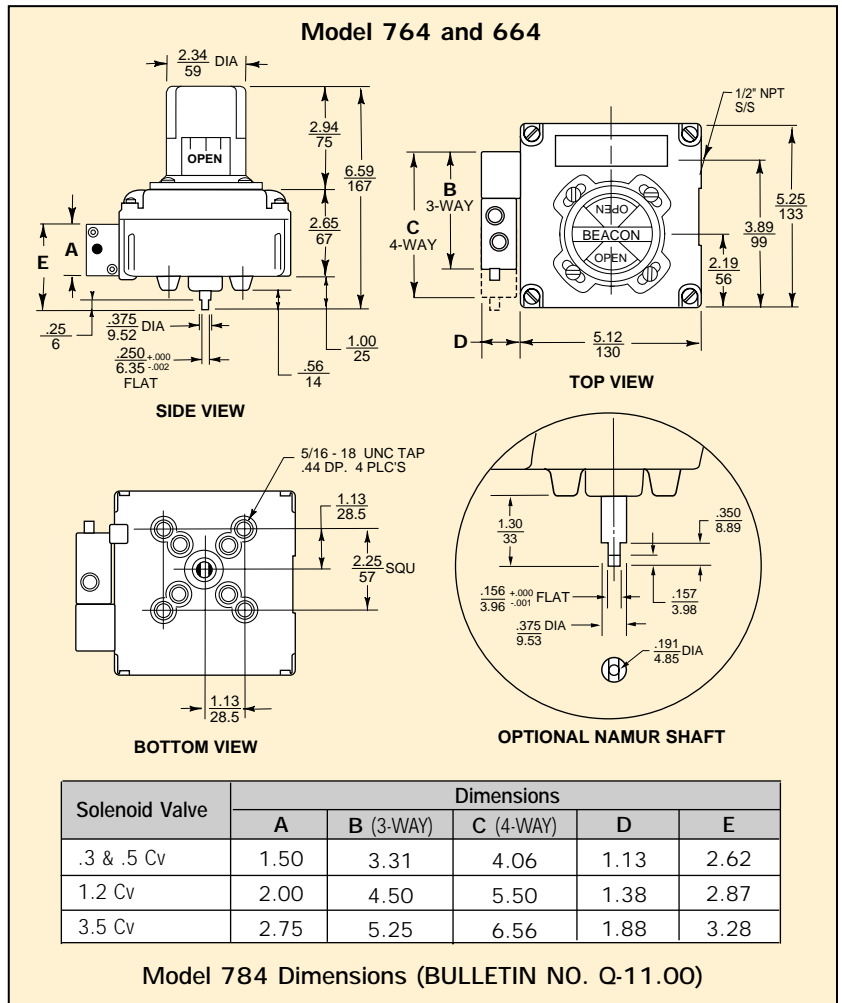
NEMA 4, 4x

## ORDERING GUIDE (FALCON® SOLENOID)

COILS	CV	Body	3-Way	4-Way
<b>FSO</b> 24 VDC 0.5 watts	.3 Cv	Brass	2100	2500
		Alum.	3100	3500
		303 S.S.	4100	4500
		316 S.S.	5100	5500
<b>FAO</b> 120 VAC 4.0 watts	.5 Cv	Brass	2200	2600
		Alum.	3200	3600
		303 SS	4200	4600
<b>FVO</b> 125 VDC 0.85 watts	.5 Cv	316 S.S.	5200	5600
		Delrin	6200	6600
		<b>FHO</b> 220 VAC 4.0 watts	1.2 Cv	Brass
Alum.	3300			3700
303 S.S.	4300			4700
316 S.S.	5300			5700
	3.5 Cv	Alum.	3400	3800
		Delrin	6400	6800

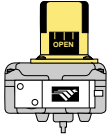



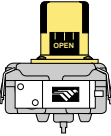




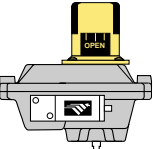



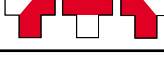
OPTIONAL FEATURES (See BULLETIN NO. Q-18.00)

## DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

## ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>764</b> Engineered Resin 	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Mech. (SPDT) <b>M2</b>  Mech. (DPDT) <b>M4</b>	Use above listing for ordering solenoid 
<b>664</b> Engineered Resin w/ Latch Cover 	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	<b>TRANSMITTERS</b>  Resistive Output: 1000 ohms <b>RS</b>  Current Output: 4-20 mA <b>CS</b>	
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 		
<b>784</b> Aluminum 	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 	Available only in 784 Aluminum & 864 Resin	
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

NOTE: Model 764 & 664 Max. 3 Switches, Model 784 Max. 4 Switches

Ordering Example: Quantum LP General Purpose, resin enclosure with standard black & yellow Beacon, 2 mechanical switches and Falcon 24 VDC/0.5 watts, .5 Cv, brass, 3-Way solenoid valve. 764-BY-M2-FSO-2200

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.



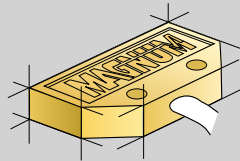
**Low Power Control Monitor for use in Division 2, Nonincendive Hazardous Areas**

# Quantum® Nonincendive

Quantum units meeting Class I, Groups A, B, C, & D, and Class II, Groups F & G, Division 2 non-incendive requirements are available in engineered resin or aluminum enclosures. Provided with two high current, hermetically sealed Magnum® proximity sensors and a wide range of integrated Falcon™ solenoid valves in both three-way and four-way configurations, the Quantum® carries Factory Mutual and Canadian Standards Association certifications. Falcon solenoid valves are available in a variety of coil voltages and body materials with stainless steel internals as standard. Cv. values range from .3 to 3.5.



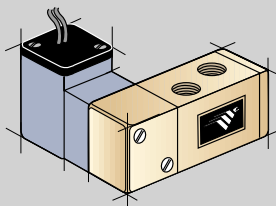
## Standard Sensor Options



## MAGNUM® Proximity Sensors

High Current Proximity Sensor, SPDT Form C  
UL, CSA (Hermetically Sealed)

AMPS	SPDT	
	VAC	VDC
3	120	
1.5	240	
2		24



## COIL POWER SUPPLY

	COILS			
	24 VDC	120 VAC	125 VDC	220 VAC
Operating Voltage	24 VDC	120 VAC	125 VDC	220 VAC
Wattage	0.5 Watts	4 Watts	0.85 Watts	4 Watts
Operating Current	20 mA	29.5 mA	6.76 mA	19 mA
Coil Resistance	1200 Ohms	610 Ohms	18500 Ohms	2200 Ohms

# Quantum® Nonincendive

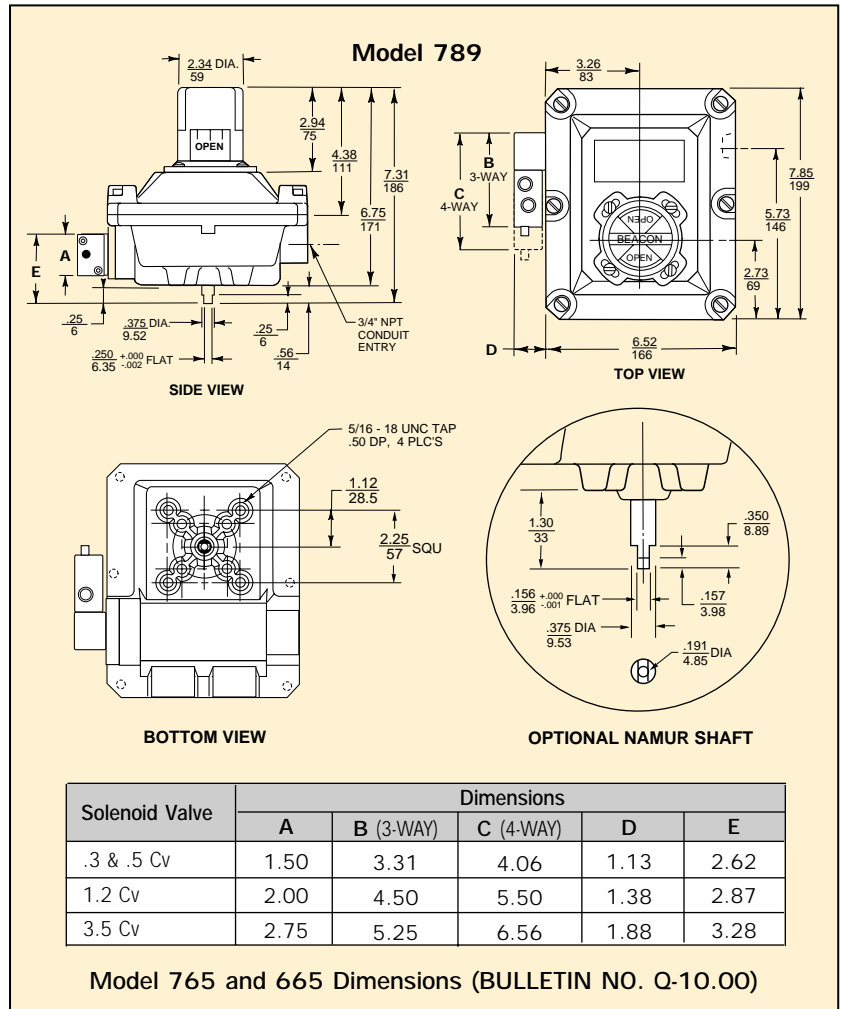
## AREA CLASSIFICATIONS

NEMA 4, 4x, Nonincendive  
Class I, Division 2, Groups A, B, C, D  
Class II, Division 2, Groups F, G

## ORDERING GUIDE (FALCON® SOLENOID)

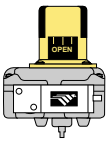




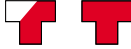
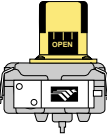




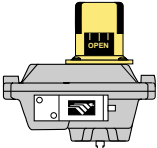

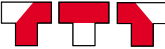
COILS	CV	Body	3-Way	4-Way
<b>FSO</b> 24 VDC 0.5 watts	.3 Cv	Brass	2100	2500
		Alum.	3100	3500
		303 S.S.	4100	4500
		316 S.S.	5100	5500
<b>FAO</b> 120 VAC 4.0 watts	.5 Cv	Delrin	6100	6500
		Brass	2200	2600
		Alum.	3200	3600
<b>FVO</b> 125 VDC 0.85 watts	.5 Cv	303 SS	4200	4600
		316 S.S.	5200	5600
		Delrin	6200	6600
<b>FHO</b> 220 VAC 4.0 watts	1.2 Cv	Brass	2300	2700
		Alum.	3300	3700
		303 S.S.	4300	4700
		316 S.S.	5300	5700
	3.5 Cv	Alum.	3400	3800
Delrin		6400	6800	
OPTIONAL FEATURES (See BULLETIN NO. Q-18.00)				

## DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

## ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>765</b> Engineered Resin 	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Magnum (SPDT) <b>M6</b>	Use above listing for ordering solenoid 
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	Magnum (SPST) <b>M7</b>	
<b>665</b> Engineered Resin w/ Latch Cover 	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 		
	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 		
<b>789</b> Aluminum 	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

NOTE: Model 765 & 665 Max. 3 Switches, Model 789 Max. 4 Switches

Ordering Example: Quantum LP Nonincendive, resin enclosure with standard black & yellow Beacon, 2 Magnum Sensors and Falcon 24 VDC/0.5 watts, .5 Cv, brass, 3-Way solenoid valve. 765-BY-M6-FSO-2200

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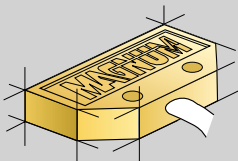
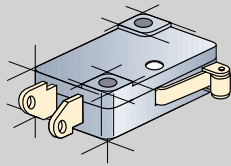
**Low Power Control Monitor  
for use in Explosionproof  
Hazardous Areas**

# Quantum® Explosionproof

Integrated within a high impact aluminum enclosure meeting NEMA 4, 4X, 7, 9, Class I, Groups C & D, Class II, Groups E, F, & G, Division 1 and 2 explosionproof requirements and certified to Factory Mutual and Canadian Standards, the Quantum® standardly houses two high current mechanical or Magnum® proximity sensors and a wide range of integrated Falcon™ solenoid valves in both three-way and four-way configurations. Falcon solenoid valves are available in a variety of coil voltages and body materials with stainless steel internals as standard. Cv. values range from .3 to 3.5.



## Standard Sensor Options



## Micro-Switch V3

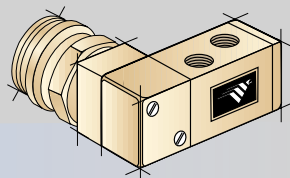
SPDT Form C, UL, CSA

AMPS	SPDT (V3)		DPDT (Licon)	
	VAC	VDC	AMPS	VAC
15	125		10	125
15	250		10	250
10		24		
.50		125		
.25		250		

## MAGNUM® Proximity Sensors

High Current Proximity Sensor, SPDT Form C  
UL, CSA (Hermetically Sealed)

AMPS	SPDT	
	VAC	VDC
3	120	
1.5	240	
2		24



## COIL POWER SUPPLY

	COILS			
	24 VDC	120 VAC	125 VDC	220 VAC
Operating Voltage	24 VDC	120 VAC	125 VDC	220 VAC
Wattage	0.55 Watts	4 Watts	1 Watt	4 Watts
Operating Current	22 mA	27 mA	8.60 mA	17.5 mA
Coil Resistance	1050 Ohms	1100 Ohms	14500 Ohms	3750 Ohms

# Quantum® Explosionproof

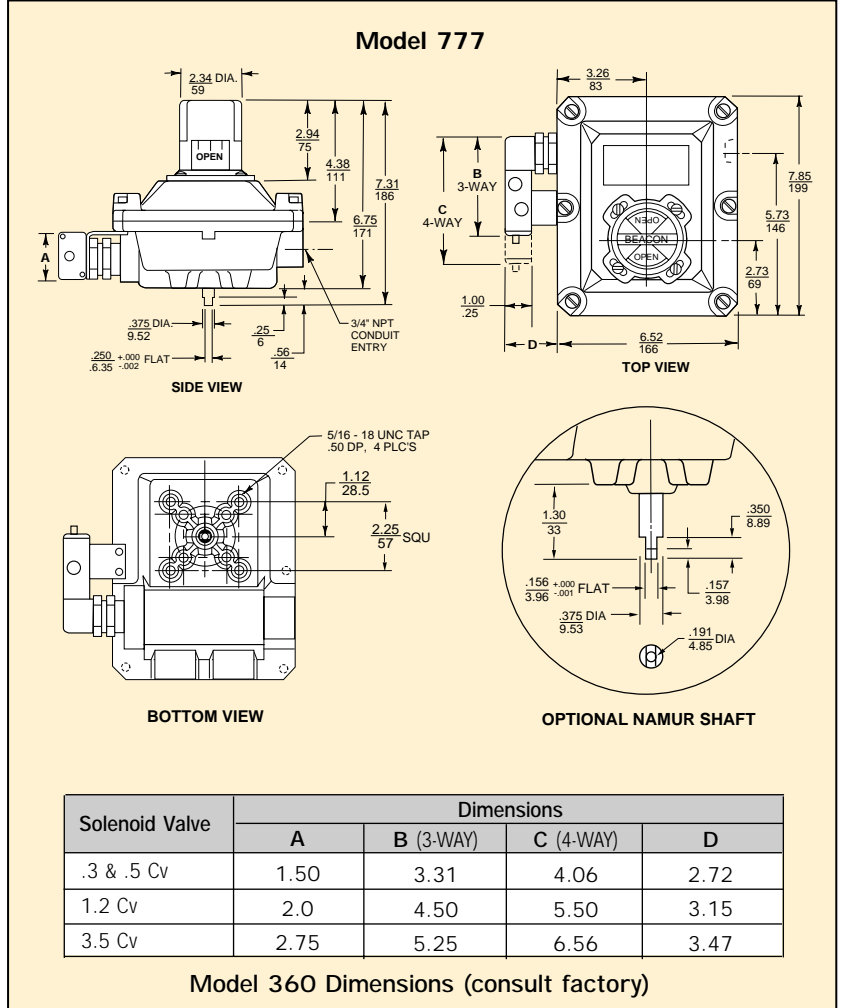
## AREA CLASSIFICATIONS

NEMA 4, 4x, 7, 9  
Class I, Groups B, C, D  
Class II, Groups E, F, G, Div. 1 & 2

## ORDERING GUIDE (FALCON® SOLENOID)



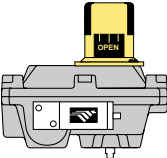

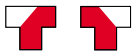







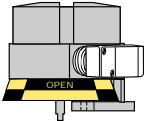



COILS	CV	Body	3-Way	4-Way
<b>XSO</b> 24 VDC 0.55 watts	.3 Cv	Brass	<b>2100</b>	<b>2500</b>
		Alum.	<b>3100</b>	<b>3500</b>
		303 S.S.	<b>4100</b>	<b>4500</b>
		316 S.S.	<b>5100</b>	<b>5500</b>
		Delrin	<b>6100</b>	<b>6500</b>
<b>XAO</b> 120 VAC 4.0 watts	.5 Cv	Brass	<b>2200</b>	<b>2600</b>
		Alum.	<b>3200</b>	<b>3600</b>
		303 SS	<b>4200</b>	<b>4600</b>
		316 S.S.	<b>5200</b>	<b>5600</b>
		Delrin	<b>6200</b>	<b>6600</b>
<b>XVO</b> 125 VDC 1.0 watts	.5 Cv	Brass	<b>2200</b>	<b>2600</b>
		Alum.	<b>3200</b>	<b>3600</b>
		303 SS	<b>4200</b>	<b>4600</b>
		316 S.S.	<b>5200</b>	<b>5600</b>
		Delrin	<b>6200</b>	<b>6600</b>
<b>XHO</b> 220 VAC 4.0 watts	1.2 Cv	Brass	<b>2300</b>	<b>2700</b>
		Alum.	<b>3300</b>	<b>3700</b>
		303 S.S.	<b>4300</b>	<b>4700</b>
		316 S.S.	<b>5300</b>	<b>5700</b>
		Delrin	<b>6300</b>	<b>6700</b>
OPTIONAL FEATURES (See BULLETIN NO. Q-18.00)	3.5 Cv	Alum.	<b>3400</b>	<b>3800</b>
		Delrin	<b>6400</b>	<b>6800</b>

## DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

## ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)	
<b>777</b> Aluminum NEMA 4, 4x, 7, 9 Class I, Groups C, D Class II, Groups E, F, G, Division 1 & 2   	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Mech. (SPDT) <b>M2</b> Mech. (DPDT) <b>M4</b> Magnum (SPDT) <b>M6</b> Magnum (SPST) <b>M7</b>	Use above listing for ordering solenoid 	
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	<b>90° Rotation B5</b> 		<b>TRANSMITTERS</b> Resistive Output: 1000 ohms <b>RS</b> Current Output: 4-20 mA <b>CS</b>
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>180° Rotation B7</b> 			
<b>360CM</b> Aluminium <b>363CM</b> 303 Stainless Steel <b>366CM</b> 316 Stainless Steel NEMA 4, 4x, 7, 9 Class I, Grps. B, C & D Class II, Grps. E, F, G, Division 1 & 2  	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B9</b> 			
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 				

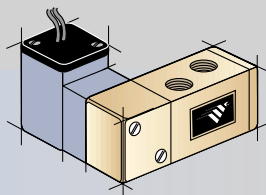
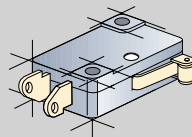
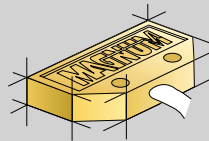
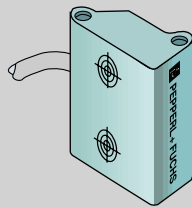
Ordering Example: Quantum LP Explosionproof, aluminum enclosure with standard black & yellow Beacon, 2 Magnum Sensors and Falcon 120 VAC/4.0 watts, .5 Cv, brass, 3-Way solenoid valve. 777-BY-M6-XAO-2200

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.



## Low Power Control Monitor for use in Intrinsically Safe Hazardous Areas

### Standard Sensor Options



# Quantum® Intrinsically Safe

Intrinsically safe Quantum® units meet class I, Groups A, B, C, & D and Class II, Groups E, F, & G, Division 1 and 2 requirements. Intrinsically safe Falcon™ solenoid valves operate through approved I.S. barriers at 12 VDC, 33 mA. and are available in a wide variety of body materials and Cv. ratings. P+F Krieterium sensors are internationally approved for intrinsically safe applications as are both Magnum® and mechanical sensors under their classification as "simple apparatus". Housed within a high impact engineered resin or aluminum enclosure and capable of operating in any position, Falcon solenoid valves elevate the integration of sensors and controls to a new level.



**I.S. APPROVALS**  
**FM - Class I, Division 1,**  
**Groups A - G**  
**CENELEC - EEx ia IIC T6**

### **P+F Krieterium 2000** Proximity Type (Solid State) Intrinsically Safe, FM, CSA, PTB, CENELEC

Sensing Range	3mm
Electrical Version	D.C. Voltage 2 wire in accordance with DIN19234 (NAMUR)
Hysteresis	Approx 5%
Switching Frequency	1.5 KHz
Input Voltage Range	5-25 VDC
Output/Current Consumption	Cam Trigger Present: ≤ 1 mA Cam Trigger Absent: ≥ 3 mA (15 mA max)
Operating Temp.	-25°C to +100°C

### **MAGNUM® Proximity Sensor w/ Low Power Contacts**

UL, CSA "Simple Apparatus", Hermetically Sealed, SPST or SPDT, Rhodium Contacts

Voltage	24 VDC Nominal
Nominal Contact Resistance	≤ .10 ohm
Operating Current Range	.5 mA to 1A
Power Range	10 mW to 25 W
Temperature Range	-40°F to 185°F

### **Micro-Switch V3 w/ Gold Contacts** UL, CSA "Simple Apparatus"

VDC	Contact Rating
12	100 mA Resistive
24	100 mA Resistive

### COIL POWER SUPPLY

	COILS
Operating Voltage	<b>24 VDC</b>
Wattage	0.48 Watts*
Operating Current	33 mA*
Coil Resistance	380 Ohms

\*When operated through approved I.S. barrier.

# Intrinsically Safe

### AREA CLASSIFICATIONS

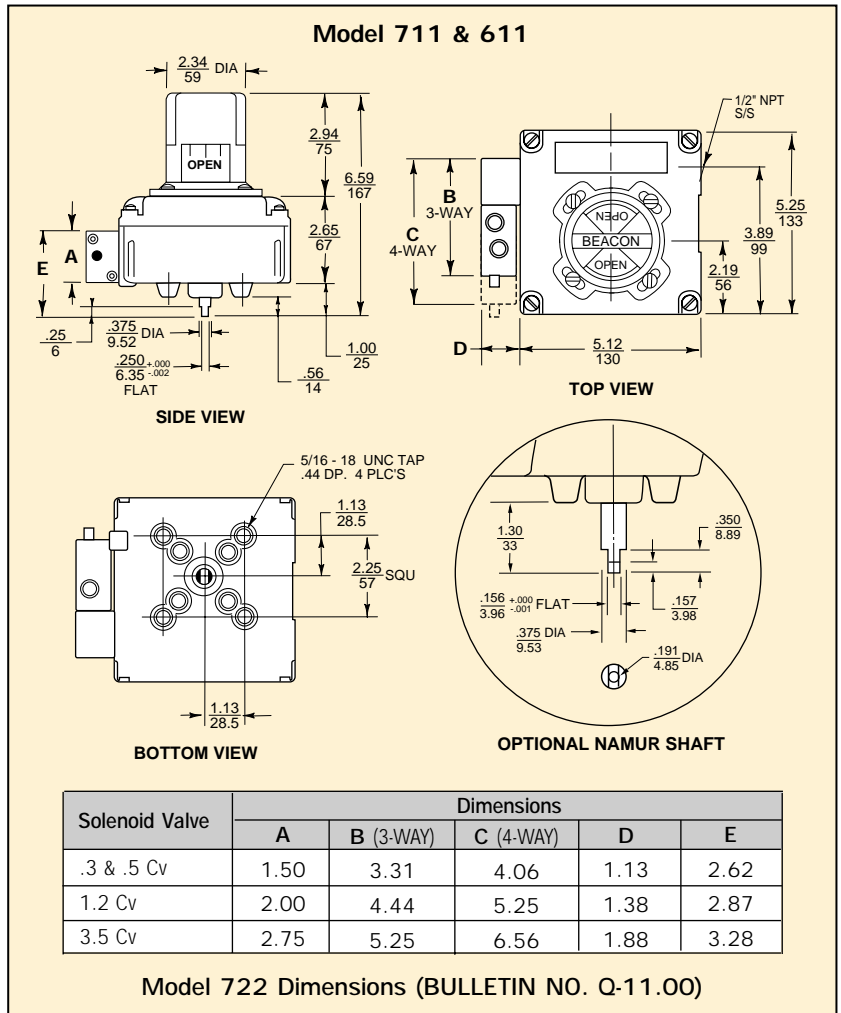
NEMA 4, 4x  
 Class I, Groups A, B, C, D,  
 Class II, Groups E, F, G, Div. 1 & 2

### ORDERING GUIDE (FALCON® SOLENOID)

COILS	CV	Body	3-Way	4-Way
<b>FIO</b> 24 VDC 0.48 watts  NOTE: I.S. valves must be operated through approved I.S. barriers.  Entity Parameters V max=35V I max=300mA Capacitance=0 Inductance=0	.3 Cv	Brass	2100	2500
		Alum.	3100	3500
		303 S.S.	4100	4500
		316 S.S.	5100	5500
	.5 Cv	Brass	2200	2600
		Alum.	3200	3600
		303 SS	4200	4600
		316 S.S.	5200	5600
	1.2 Cv	Brass	2300	2700
		Alum.	3300	3700
		303 S.S.	4300	4700
		316 S.S.	5300	5700
3.5 Cv	Alum.	3400	3800	
	Delrin	6400	6800	


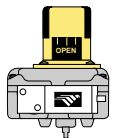

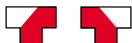


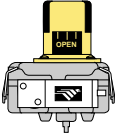





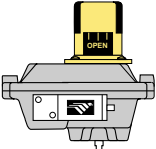




OPTIONAL FEATURES (See BULLETIN NO. Q-18.00)

### DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

### ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>711</b> Engineered Resin  	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Magnum (SPDT) <b>M12</b>  Kriterium <b>M11</b>	Use above listing for ordering solenoid 
<b>611</b> Engineered Resin w/ Latch Cover  	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	Magnum (SPST) <b>M10</b>	
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 	Mech. (SPDT) w/ Gold Plated Contacts <b>M9</b>	
<b>722</b> Aluminum  	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 		
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

NOTE: Model 711 and 611 Max. 2 Sensors, Model 722 Max. 4 Sensors

Ordering Example: Quantum LP Intrinsically Safe, resin enclosure with standard black & yellow Beacon, 2 Magnum Sensors and Falcon 24 VDC/.48 watts, .5 Cv, brass, 3-Way solenoid valve. 711-BY-M10-FIO-2200

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.



Low Power Control Monitor for use in Non-Hazardous Areas

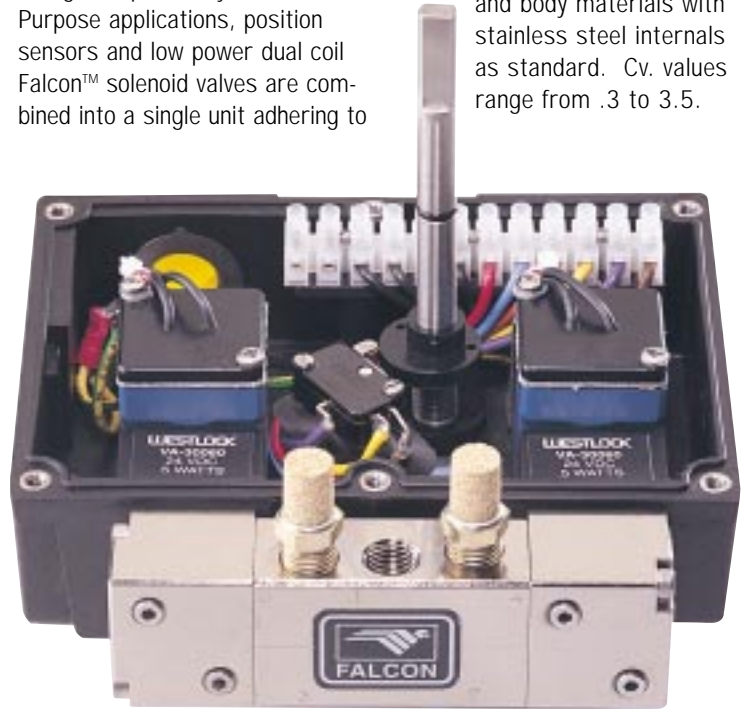
# Quantum® Dual Coil General Purpose

Offering an extremely efficient and compact method for the integration of position sensors and dual coil solenoid valves, the Quantum® combines three individual components (junction housing, sensors, and dual coil solenoids) into a single cost effective unit.

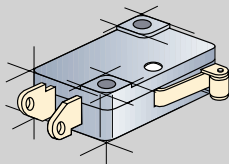
Designed specifically for General Purpose applications, position sensors and low power dual coil Falcon™ solenoid valves are combined into a single unit adhering to

NEMA 4, 4x requirements. Available in an engineered resin enclosure, the Quantum standardly houses two SPDT Form C Micro-Switches and a wide range of integrated dual coil solenoid valves in four-way configurations. Falcon solenoid valves are available in a

variety of coil voltages and body materials with stainless steel internals as standard. Cv. values range from .3 to 3.5.

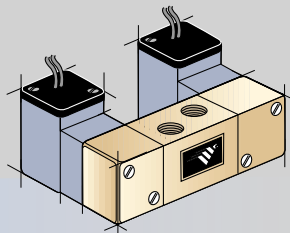


## Standard Sensor Options



## Micro-Switch V3 SPDT Form C, UL, CSA

AMPS	SPDT (V3)		DPDT (Licon)	
	VAC	VDC	AMPS	VAC
15	125		10	125
15	250		10	250
10		24		
.50		125		
.25		250		



## COIL POWER SUPPLY

	COILS			
	24 VDC	120 VAC	125 VDC	220 VAC
Operating Voltage	24 VDC	120 VAC	125 VDC	220 VAC
Wattage	0.5 Watts	4 Watts	0.85 Watts	4 Watts
Operating Current	20 mA	29.5 mA	6.76 mA	19 mA
Coil Resistance	1200 Ohms	610 Ohms	18500 Ohms	2200 Ohms

# Quantum® Dual Coil General Purpose

## AREA CLASSIFICATIONS

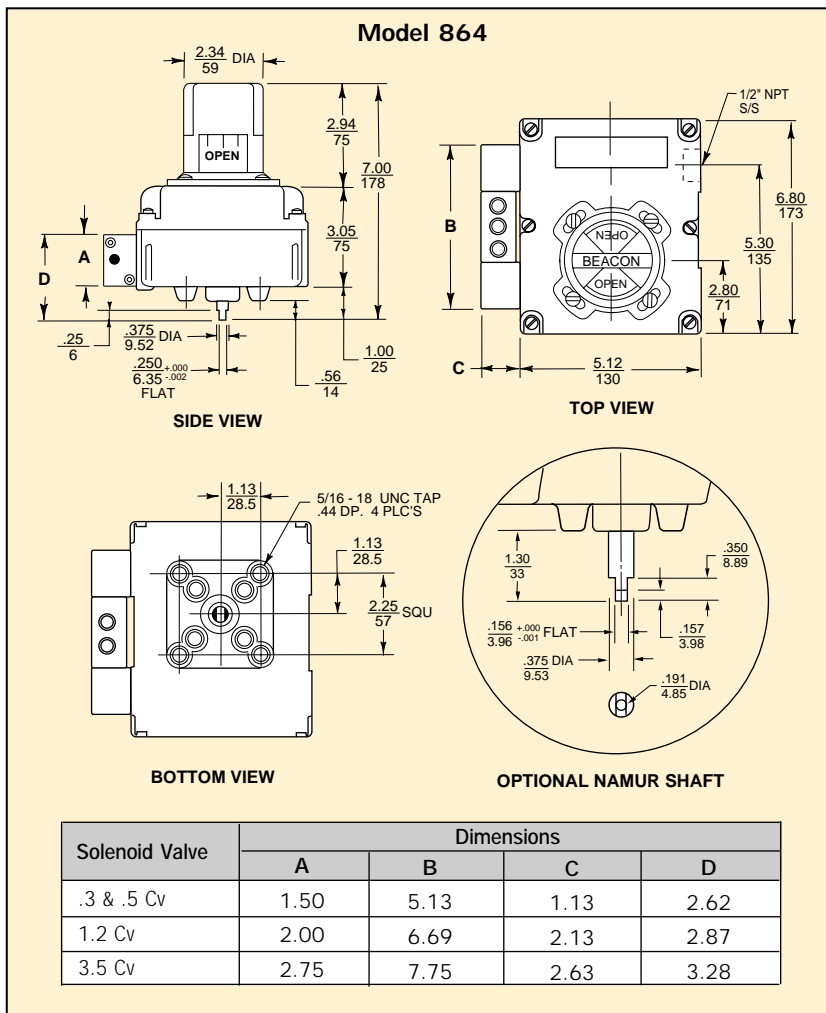
NEMA 4, 4x

## ORDERING GUIDE (FALCON® SOLENOID)

COILS	CV	Body	4-Way		
<b>FSO</b> 24 VDC 0.5 watts	.3 Cv	Brass	<b>2900</b>		
		Alum.	<b>3900</b>		
		303 S.S.	<b>4900</b>		
		316 S.S.	<b>5900</b>		
<b>FAO</b> 120 VAC 4.0 watts	.5 Cv	Delrin	<b>6900</b>		
		Brass	<b>2000</b>		
		Alum.	<b>3000</b>		
		303 SS	<b>4000</b>		
<b>FVO</b> 125 VDC 0.85 watts	.5 Cv	316 S.S.	<b>5000</b>		
		Delrin	<b>6000</b>		
		<b>FHO</b> 220 VAC 4.0 watts	1.2 Cv	Brass	<b>2Y00</b>
				Alum.	<b>3Y00</b>
303 S.S.	<b>4Y00</b>				
316 S.S.	<b>5Y00</b>				
3.5 Cv	Alum.	<b>3Z00</b>			
	Delrin	<b>6Z00</b>			

OPTIONAL FEATURES (See BULLETIN NO. Q-18.00)

## DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

## ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>864</b> Engineered Resin NEMA 4, 4x  Factory Mutual System Approved	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Mech. (SPDT) <b>M2</b>	Use above listing for ordering solenoid 
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	Mech. (DPDT) <b>M4</b>	
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 		
	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 		
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

NOTE: Model 864 Max. 3 Switches

Ordering Example: Quantum LP General Purpose, resin enclosure with standard black & yellow Beacon, 2 mechanical switches and Falcon 120 VAC/4.0 watts, .5 Cv, brass, 4-Way solenoid valve. 864-BY-M2-FAO-2000

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.



## Low Power Control Monitor for use in Division 2, Nonincendive Hazardous Areas

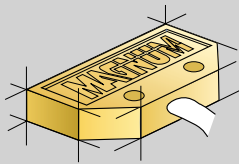
# Quantum® Dual Coil Nonincendive

The Quantum® combines three individual components (junction housing, sensors, and dual coil solenoid valves) into a single cost effective unit. Available in an engineered resin enclosure, the Quantum meets Class I, Groups A, B, C & D and Class II, Groups F & G, Division 2 nonincendive requirements. Provided with two high current, hermetically sealed Magnum® proximity sensors and a wide range of integrated Falcon™ dual coil solenoid valves in four-way configurations, the Quantum carries Factory Mutual and Canadian Standards Association certifications. Falcon solenoid valves are available in a variety of coil voltages



and body materials with stainless steel internals as standard. Cv. values range from .3 to 3.5.

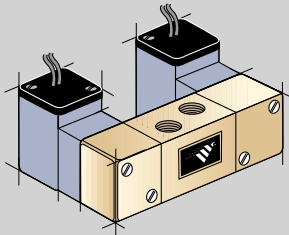
### Standard Sensor Options



### MAGNUM® Proximity Sensors

High Current Proximity Sensor, SPDT Form C  
UL, CSA (Hermetically Sealed)

AMPS	SPDT	
	VAC	VDC
3	120	
1.5	240	
2		24



### COIL POWER SUPPLY

	COILS			
	24 VDC	120 VAC	125 VDC	220 VAC
Operating Voltage	24 VDC	120 VAC	125 VDC	220 VAC
Wattage	0.5 Watts	4 Watts	0.85 Watts	4 Watts
Operating Current	20 mA	29.5 mA	6.76 mA	19 mA
Coil Resistance	1200 Ohms	610 Ohms	18500 Ohms	2200 Ohms

# Quantum® Dual Coil

## Nonincendive

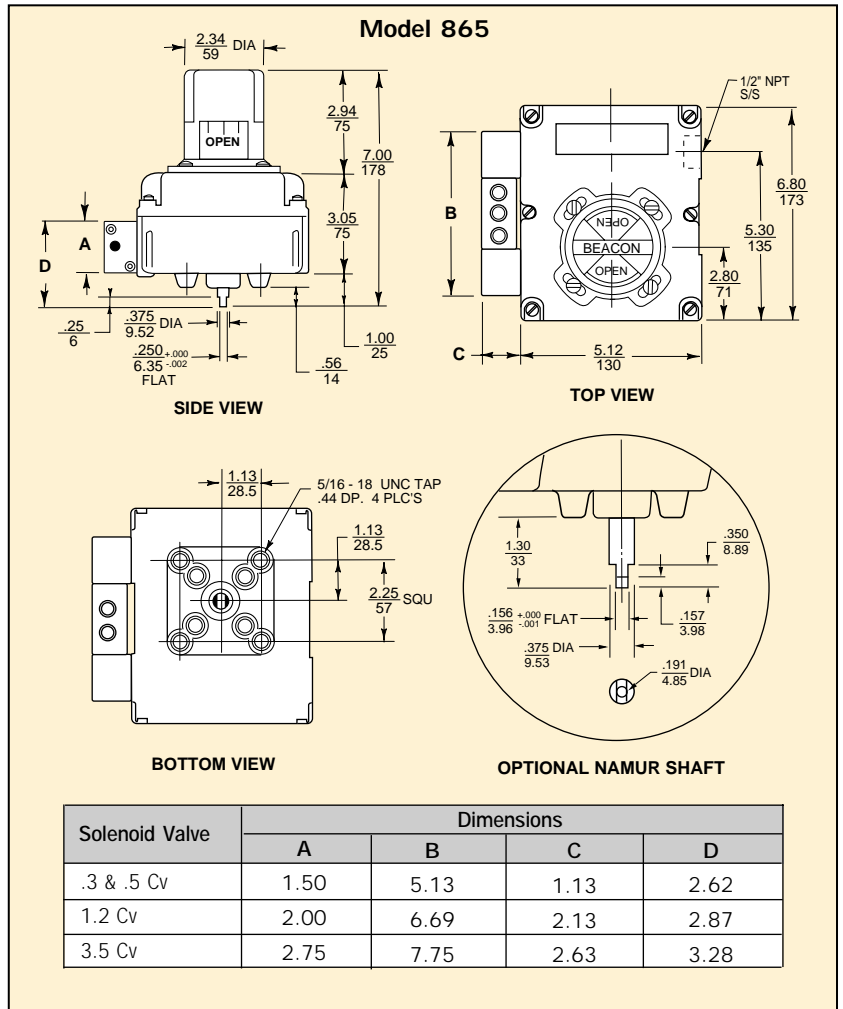
### AREA CLASSIFICATIONS

NEMA 4, 4x, Nonincendive  
 Class I, Division 2, Groups A, B, C, D  
 Class II, Division 2, Groups F, G

### ORDERING GUIDE (FALCON® SOLENOID)

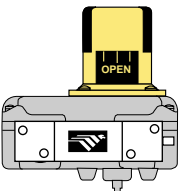



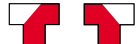









COILS	CV	Body	4-Way
<b>FSO</b> 24 VDC 0.5 watts	<b>.3 Cv</b>	Brass	<b>2900</b>
		Alum.	<b>3900</b>
		303 S.S.	<b>4900</b>
		316 S.S.	<b>5900</b>
<b>FAO</b> 120 VAC 4.0 watts	<b>.5 Cv</b>	Delrin	<b>6900</b>
		Brass	<b>2000</b>
		Alum.	<b>3000</b>
		303 SS	<b>4000</b>
<b>FVO</b> 125 VDC 0.85 watts	<b>.5 Cv</b>	316 S.S.	<b>5000</b>
		Delrin	<b>6000</b>
		Brass	<b>2Y00</b>
		Alum.	<b>3Y00</b>
<b>FHO</b> 220 VAC 4.0 watts	<b>1.2 Cv</b>	303 S.S.	<b>4Y00</b>
		316 S.S.	<b>5Y00</b>
		Delrin	<b>6Y00</b>
		Alum.	<b>3Z00</b>
		Delrin	<b>6Z00</b>
<b>OPTIONAL FEATURES</b> (See BULLETIN NO. Q-18.00)			

### DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

### ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>865</b> Engineered Resin  NEMA 4, 4x Class I, Div. 2, Groups A, B, C, D Class II, Div. 2, Groups F, G  	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Magnum (SPDT) <b>M6</b>	Use above listing for ordering solenoid 
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	Magnum (SPST) <b>M7</b>	
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 		
	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 		
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

NOTE: Model 865 Max. 3 Switches

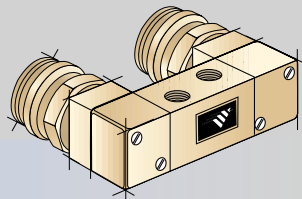
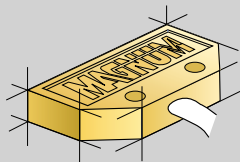
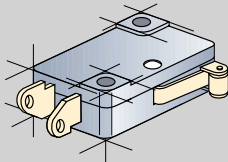
Ordering Example: Quantum LP Nonincendive, resin enclosure with standard black & yellow Beacon, 2 Magnum Sensors and Falcon 24 VDC/0.5 watts, .5 Cv, brass, 4-Way solenoid valve. 865-BY-M6-FSO-2000

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## Low Power Control Monitor for use in Explosionproof Hazardous Areas

### Standard Sensor Options



# Quantum® Dual Coil Explosionproof

Integrated within a high impact aluminum enclosure meeting NEMA 4, 4X, 7, 9, Class I, Groups C & D, Class II, Groups E, F, & G, Division 1 and 2 explosionproof requirements and certified to Factory Mutual and Canadian Standards, the Quantum® standardly houses two high current mechanical or Magnum® proximity sensors and a wide range of integrated dual coil

Falcon™ solenoid valves in four-way configurations. Falcon solenoid valves are available in a variety of coil voltages and body materials with stainless steel internals as standard. Cv. values range from .3 to 1.2.

### Micro-Switch V3

SPDT Form C, UL, CSA

AMPS	SPDT (V3)		DPDT (Licon)	
	VAC	VDC	AMPS	VAC
15	125		10	125
15	250		10	250
10		24		
.50		125		
.25		250		

### MAGNUM® Proximity Sensors

High Current Proximity Sensor, SPDT Form C  
UL, CSA (Hermetically Sealed)

AMPS	SPDT	
	VAC	VDC
3	120	
1.5	240	
2		24

### COIL POWER SUPPLY

	COILS			
	24 VDC	120 VAC	125 VDC	220 VAC
Operating Voltage	24 VDC	120 VAC	125 VDC	220 VAC
Wattage	0.55 Watts	4 Watts	1 Watts	4 Watts
Operating Current	22 mA	27 mA	8.60 mA	17.5 mA
Coil Resistance	1050 Ohms	1100 Ohms	14500 Ohms	3750 Ohms

# Quantum® Dual Coil

## Explosionproof

### AREA CLASSIFICATIONS

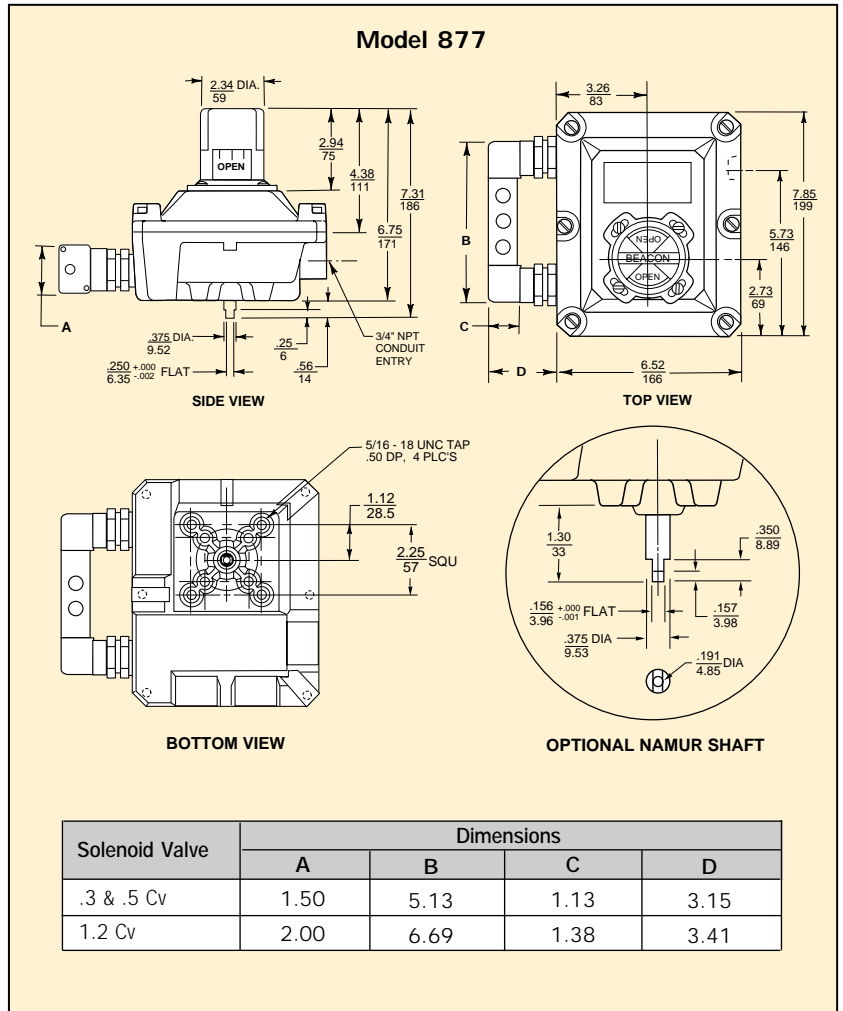
NEMA 4, 4x, 7, 9  
 Class I, Groups C, D  
 Class II, Groups E, F, G, Div. 1 & 2

### ORDERING GUIDE (FALCON® SOLENOID)

COILS	CV	Body	4-Way
<b>XSO</b> 24 VDC 0.55 watts	.3 Cv	Brass	<b>2900</b>
		Alum.	<b>3900</b>
		303 S.S.	<b>4900</b>
<b>XAO</b> 120 VAC 4.0 watts	.5 Cv	316 S.S.	<b>5900</b>
		Delrin	<b>6900</b>
		Brass	<b>2000</b>
<b>XVO</b> 125 VDC 1.0 watts	.5 Cv	Alum.	<b>3000</b>
		303 SS	<b>4000</b>
		316 S.S.	<b>5000</b>
<b>XHO</b> 220 VAC 4.0 watts	1.2 Cv	Delrin	<b>6000</b>
		Brass	<b>2Y00</b>
		Alum.	<b>3Y00</b>
		303 S.S.	<b>4Y00</b>
		316 S.S.	<b>5Y00</b>
		Delrin	<b>6Y00</b>

OPTIONAL FEATURES (See BULLETIN NO. Q-18-00)

### DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

### ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>877</b> Aluminum  NEMA 4, 4x, 7, 9 Class I, Groups C, D Class II, Groups E, F, G, Division 1 & 2 	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Mech. (SPDT) <b>M2</b>	Use above listing for ordering solenoid 
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	Mech. (DPDT) <b>M4</b>	
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 	Magnum (SPDT) <b>M6</b>	
	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 	Magnum (SPST) <b>M7</b>	
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

Ordering Example: Quantum LP Explosionproof, aluminum enclosure with standard black & yellow Beacon, 2 Magnum Sensors and Falcon 120 VAC/4.0 watts, .5 Cv, brass, 4-Way solenoid valve. 877-BY-M6-XAO-2000

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.



**Low Power Control Monitor  
for use in Intrinsically Safe  
Hazardous Areas**

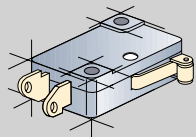
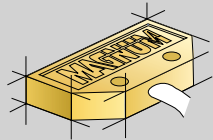
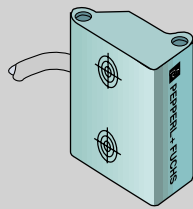
# Quantum® Dual Coil Intrinsically Safe

Intrinsically safe Quantum units meet Class I, Groups A, B, C, & D and Class II, Groups E, F, & G, Division 1 and 2 requirements. Intrinsically safe dual coil Falcon solenoid valves operate through approved I.S. barriers at 12 VDC, 33 mA, and are available in a wide variety of body materials and Cv. ratings. P&F Kriterium sensors are internationally approved for intrinsically safe applications as are both Magnum and mechanical sensors under their classification as "simple apparatus". Housed within a high impact engineered resin enclosure and capable of operating in

any position, Falcon solenoid valves elevate the integration of sensors and controls to a new level. Offering an extremely efficient and compact method for the integration of position sensors and dual coil solenoid valves, the Quantum integrates both components into a single cost effective unit.



## Standard Sensor Options



### **P+F Kriterium 2000** Proximity Type (Solid State) Intrinsically Safe, FM, CSA, PTB, CENELEC

Sensing Range	3mm
Electrical Version	D.C. Voltage 2 wire in accordance with DIN19234 (NAMUR)
Hysteresis	Approx 5%
Switching Frequency	1.5 KHz
Input Voltage Range	5-25 VDC
Output/Current Consumption	Cam Trigger Present: ≤ 1 mA Cam Trigger Absent: ≥ 3 mA (15 mA max)
Operating Temp.	-25°C to +100°C

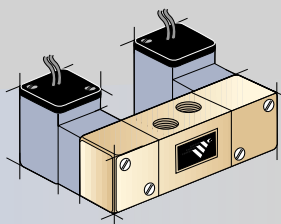
### **MAGNUM® Proximity Sensor w/ Low Power Contacts**

UL, CSA "Simple Apparatus", Hermetically Sealed, SPST

Voltage	24 VDC Nominal
Nominal Contact Resistance	≤ .10 ohm
Operating Current Range	.5 mA to 1A
Power Range	10 mW to 25 W
Temperature Range	-40°F to 185°F

### **Micro-Switch V3 w/ Gold Contacts** UL, CSA "Simple Apparatus"

VDC	Contact Rating
12	100 mA Resistive
24	100 mA Resistive



## COIL POWER SUPPLY

	COILS
Operating Voltage	<b>24 VDC</b>
Wattage	0.48 Watts*
Operating Current	33 mA*
Coil Resistance	380 Ohms

\*When operated through approved I.S. barrier.

# Quantum® Dual Coil

## Intrinsically Safe

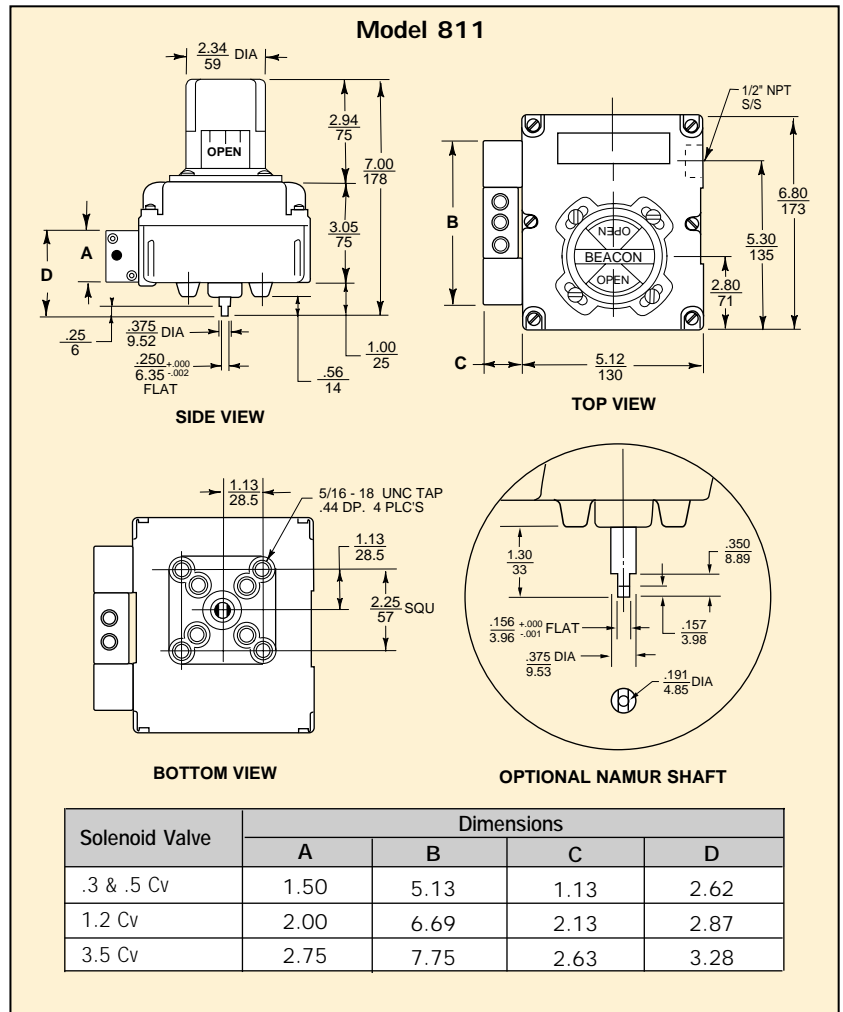
### AREA CLASSIFICATIONS

NEMA 4, 4x  
 Class I, Groups A, B, C, D,  
 Class II, Groups E, F, G, Div. 1 & 2

### ORDERING GUIDE (FALCON® SOLENOID)

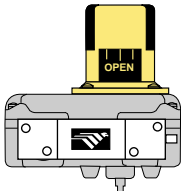



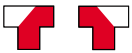


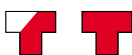

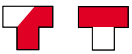




COILS	CV	Body	4-Way	
<b>FIO</b> 24 VDC 0.48 watts  <b>NOTE:</b> I.S. valves must be operated through approved I.S. barriers.  <b>Entity Parameters</b> V max=35V I max=300mA Capacitance=0 Inductance=0	.3 Cv	Brass	<b>2900</b>	
		Alum.	<b>3900</b>	
		303 S.S.	<b>4900</b>	
		316 S.S.	<b>5900</b>	
		Delrin	<b>6900</b>	
	.5 Cv	Brass	<b>2000</b>	
		Alum.	<b>3000</b>	
		303 SS	<b>4000</b>	
		316 S.S.	<b>5000</b>	
		Delrin	<b>6000</b>	
	1.2 Cv	Brass	<b>2Y00</b>	
		Alum.	<b>3Y00</b>	
		303 S.S.	<b>4Y00</b>	
		316 S.S.	<b>5Y00</b>	
	3.5 Cv	Alum.	<b>3Z00</b>	
		Delrin	<b>6Z00</b>	
	<b>OPTIONAL FEATURES</b> (See BULLETIN NO. Q-18.00)			

### DIMENSIONS (inches/mm)



Note: Minimum operating pressure: 45 psi.

### ORDERING GUIDE

QUANTUM™ LP	BEACON™	3-WAY BEACON™	SENSOR	SOLENOID (Falcon®)
<b>811</b> Engineered Resin    NEMA 4, 4x Class I, Groups A, B, C, D Class II, Groups E, F, G Div. 1 & 2   	<b>STANDARD</b> (Black & Yellow) <b>BY</b> 	<b>90° Rotation B1</b> 	Kriterium <b>M11</b>	Use above listing for ordering solenoid  
	<b>ANSI YELLOW</b> (Inherently Hazardous) <b>AY</b> 	<b>90° Rotation B3</b> 	Magnum (SPST) <b>M10</b>	
	<b>ANSI GREEN</b> (Liquid-Low Hazard) <b>AG</b> 	<b>90° Rotation B5</b> 	Mech. (SPDT) w/ Gold Plated Contacts <b>M9</b>	
	<b>ANSI BLUE</b> (Gas-Low Hazard) <b>AB</b> 	<b>180° Rotation B7</b> 		
	<b>ANSI RED</b> (Fire Quenching) <b>AR</b> 	<b>180° Rotation B9</b> 		

**NOTE:** Model 811 Max. 3 Switches,

Ordering Example: Quantum LP Intrinsically Safe, resin enclosure with standard black & yellow Beacon, 2 Magnum Sensors and Falcon 24 VDC/.48 watts, .5 Cv, brass, 4-Way solenoid valve. 811-BY-M10-FIO-2000

Westlock reserves the right to change product designs and specifications without notice, and is not responsible for errors and omissions.

# Optional Features/Replacement Parts & Rebuild Kits



## FALCON MANUAL RESET SOLENOID VALVES

### N - No-Voltage Release (Latching)

With the coil first energized, the palm button is then manually moved and latched. The inward movement of the palm button causes

the valve to shift. When the coil is de-energized, the palm button and latching mechanism are automatically tripped, allowing the valve to return to its original position.

### R - No-Voltage Release (Non-Latching)

With the coil first energized, the palm button is then manually moved. The inward movement of the palm button causes the valve to shift. When the coil is de-energized, the valve automatically returns to its original position.

**NOTE:** Manual Reset solenoid valves are NC and available in 1.2 Cv only.

### L - Falcon Manual Maintained Override

Manually depress palm button and rotate clockwise for maintained condition, must manually disengage to return to original position.

### M - Falcon Momentary Override

Spring return momentary push type, must hold in to actuate.

### E - External Pilot

The 1/8" NPT external pilot connection requires a separate auxiliary pressure line to the valve. This feature should be used when the controlled pressure is below the minimum 45 psi operating pressure.

## REPLACEMENT COILS

<b>Control Monitor Models 764, 664, 784</b>	24 VDC 0.5 Watts VA30060	125 VDC 0.85 Watts VA30054		120 VAC 4 Watts VA30059	220 VAC 4 Watts VA30052
<b>Control Monitor Models 765, 665, 789</b>	24 VDC 0.5 Watts VA30060	125 VDC 0.85 Watts VA30054	24 VDC, Polarized w/ Diodes 0.5 Watts VA30056	120 VAC 4 Watts VA30059	220 VAC 4 Watts VA30052
<b>Control Monitor Models 711, 611, 722</b>	24 VDC Intrinsically Safe .48 Watts VA30061				
<b>Control Monitor Model 777</b>	24 VDC Explosionproof 0.55 Watts VA30058	125 VDC Explosionproof 1.0 Watts VA30046		120 VAC Explosionproof 4 Watts VA30057	220 VAC Explosionproof 4 Watts VA30045

## REBUILD KITS

Mechanical Configuration and CV	KIT
3 Way .3 Cv or .5 Cv	VA30010
4 Way .3 Cv or .5 Cv	VA30011
4 Way .3 Cv or .5 Cv Dual Coil	VA30079
3 Way 1.2 Cv	VA30008
4 Way 1.2 Cv	VA30009
4 Way 1.2 Cv Dual Coil	VA30136
3 Way 3.5 Cv	VA30037
4 Way 3.5 Cv	VA30088
4 Way 3.5 Cv Dual Coil	VA30148

## ORDERING EXAMPLE

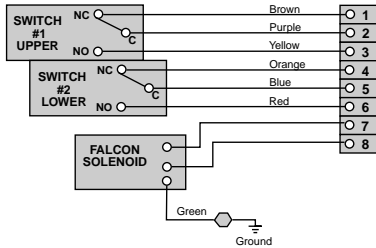
For Manual Operator options replace last digit of solenoid model number with the appropriate Manual Operator model number.

**EXAMPLE:** 430M = 3-Way, 1.2 Cv, 303 Stainless Steel w/ Momentary Manual Override.

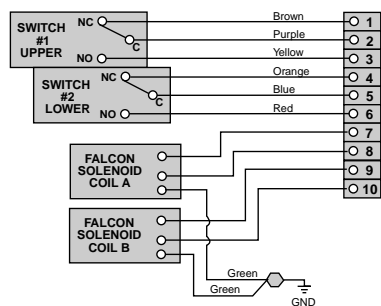
MODEL NUMBER	777	BY	M6	XSO	4300	RS
<b>Enclosure Material</b>	Explosionproof, Aluminum					
<b>Beacon Indicator</b>	Standard Black & Yellow					
<b>Sensors</b>	2- SPDT Magnum					
<b>Integral Solenoid</b>	Coil: 24 VDC, 0.5 WATTS Valve Body: 3-Way, 1.2 Cv, 303 Stainless Steel					
<b>Transmitter</b>	Resistive Output, 1000 ohms					

# Wiring Diagrams

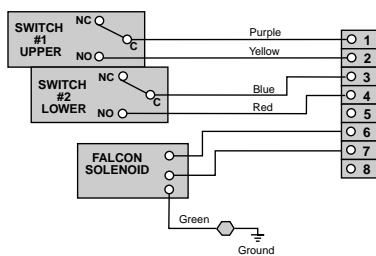
2-SPDT Mechanical Switches with Falcon Solenoid & 8 PT TS



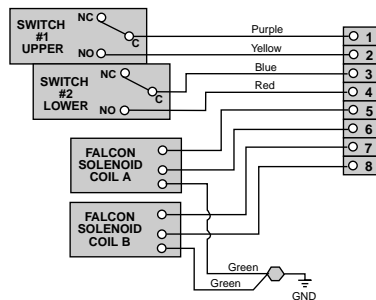
2-SPDT Mechanical Switches with Falcon Dual Coil Solenoid & 10 PT TS



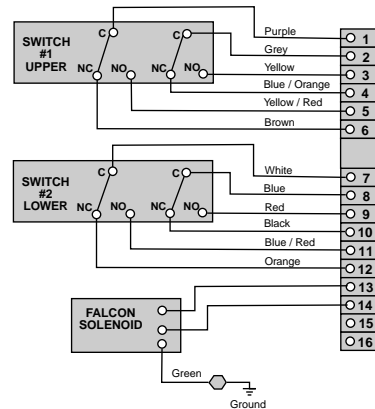
2-SPST Mechanical Switches with Falcon Solenoid & 8 PT TS



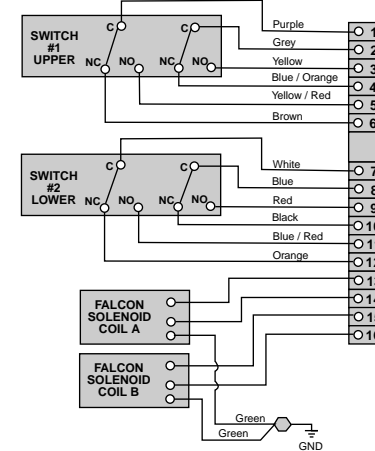
2-SPST Mechanical Switches with Falcon Dual Coil Solenoid & 8 PT TS



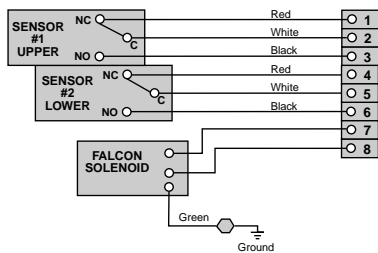
2-DPDT Mechanical Switches with Falcon Solenoid & 16 PT TS



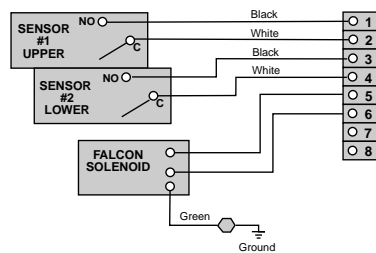
2-DPDT Mechanical Switches with Falcon Dual Coil Solenoid & 16 PT TS



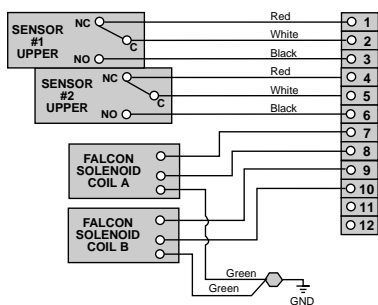
2-SPDT Magnum Sensors with Falcon Solenoid & 8 PT TS



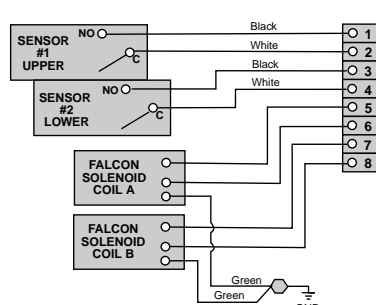
2-SPST Magnum Sensors with Falcon Solenoid & 8 PT TS



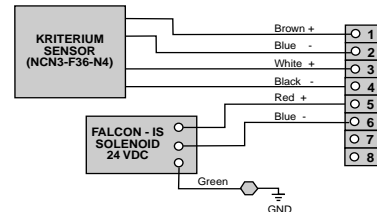
2-SPDT Magnum Sensors with Falcon Dual Coil Solenoid & 12 PT TS



2-SPST Magnum Sensors with Falcon Dual Coil Solenoid & 8 PT TS



P+F Kriterium Sensor with Falcon Solenoid & 8 PT TS



P+F Kriterium Sensor with Falcon Dual Coil Solenoid & 10 PT TS

