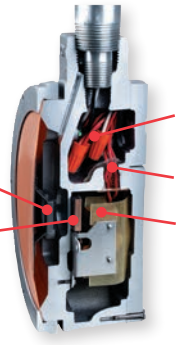
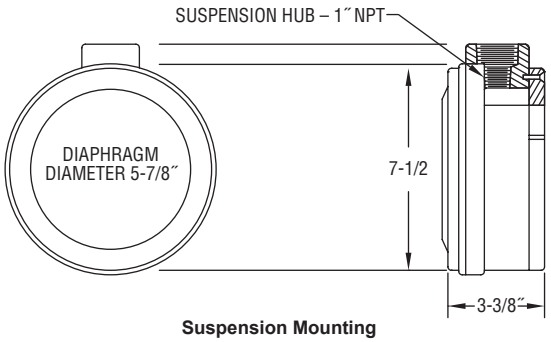
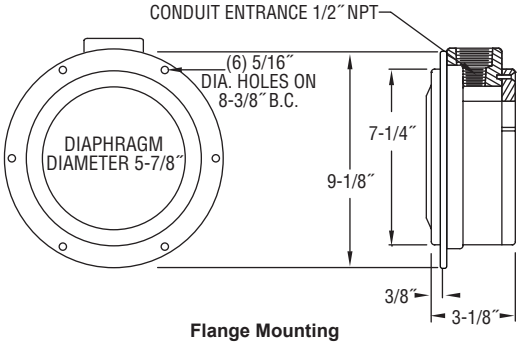
Dwyer

EXPLOSION-PROOF LEVEL SWITCHES FOR POWDER & BULK SOLIDS





Suspension Mounting



Flange Mounting

Scan here to watch product video

The **SERIES E, G, AND P ULTRA MAG™** is an explosion-proof series of level switches for powder and bulk solids that utilize a unique magnetic linkage and diagram design to sense the presence of powder and bulk solids in a variety of bins, vessels, and hoppers.

FEATURES/BENEFITS

- Uses a unique magnetic linkage which isolates the electrical compartment from controlled product, reducing maintenance and improving sensitivity
- Sealed switch compartment and sealed leads yield the exceptionally reliable operation
- A wide selection of diaphragms and switches is available with choices of flange or suspension mounting to fit a specific application
- Extremely sensitive indication and very economical
- Magnetic linkage makes this simple explosion-proof diaphragm switch the most rugged and reliable level control for a variety of products

APPLICATIONS

- Mining
- Food and beverage
- Silos
- Hoppers

SPECIFICATIONS

Service: Compatible powder or bulk solids.
Wetted Materials: Mounting Flange: See model chart. Aluminum or 304 SS; Diaphragm: See model chart. Urethane, Buna-N, PTFE, silicone rubber, polyester, fluoroelastomers, white Buna-N (food grade), or EPDM.
Temperature Limits: Depends on diaphragm material, see model chart. Standard switch: -40 to 185°F (-40 to 85°C); High temperature switch: -40 to 350°F (-40 to 176°C).
Pressure Limit: 60 psig (4.14 bar).
Enclosure Rating: General purpose or weatherproof and explosion-proof. See model chart.
Switch Type: See model chart.
Electrical Rating: See model chart.
Electrical Connections: 18 gage solid core, 600 volt TEW 105°C, style 1015. Epoxy sealed at conduit entrance. 12″ (304.8 mm) long.
Conduit Connection: 1/2″ female NPT.
Process Connection: For flanged models standard is 8-3/8″ (212.725 mm) diameter bolt hole circle.
Mounting Orientation: Flange mount or suspend depending on model.
Set Point Adjustment: Internal screw.
Options: Suspension kits and flange adapter rings.
Weight: 7 lb (3.18 kg).
Agency Approvals: CSA and UL.

MOUNTING SELECTION

A choice of either suspension or flange mounting is available to match your application. Flange mounting is the best choice for control of low or intermediate level in vessels containing granular product that does not “bridge”, “rathole”, or otherwise build up on vessel walls. Choose suspension mounting for high level in vessels and for better operation with “bridging” product.❶

Note: The mounting configuration is represented by the letter “S” for suspension or “F” for flange which is the second digit in the part number.❷

DIAPHRAGM SELECTION

A wide variety of diaphragms are available to match product bulk density, flowability, abrasiveness and temperature requirements while providing maximum sensitivity. The best choice for vessels subject to pressure or vacuum is “breathable” fabric (P Series), requiring no venting. Non-porous elastomer (G Series) type diaphragms are the best choice for more abrasive product and broader temperature range applications. Venting is always required with the G series and if used in pressurized vessels, venting to the tank atmosphere is required to allow pressure equalization. A slide rule “Diaphragm Selector” is available from the factory to help you choose the diaphragm best suited to your application.

❶Suspension and Flange Mounting Kits: See page 265 (Ultra Mag™)
❷Part Number: See page 265 (Ultra Mag™)

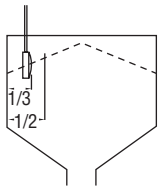
EXPLOSION-PROOF LEVEL SWITCHES FOR POWDER & BULK SOLIDS

DIAPHRAGM SELECTION GUIDE			
Product	**Suggested Diaphragm***	**Product**	**Suggested Diaphragm***
Abrasive	3D	Polypropylene Powder	7A
Aggregate	3D	Polypropylene Resin	17
Alumina	3D	Polystyrene Beads	3D
Ash, Dry	3D	Pot Ash	3D
Baking Powder	7B	Powdered Metal	3D
Baking Soda	7B	Powdered Ore	3D
Barite	3D	PVC Powder	7A
Bark, Ground	6G	PVC Resin	17
Barley, Ground or Meal	17	Rice	17
Barley, Whole	4B	Rye	3D
Beans, Edible	4B	Salt	3D
Bentonite	3D	Sand, Dry	3D
Bond, Foundry	17	Sand, Dry Silica	3D
Carbon Black	7A	Sand, Foundry Prepared	5A
Cement, Klinker	8A	Sand, Shake Out	3D
Cement, Portland	4B	Sawdust, Dry	6G
Chips, Hogged Fuel	6G	Sea Coal	3D
Coal	3D	Sesame Seed	3D
Compost	5A	Shale, Crushed	3D
Core Sand, Foundry	3D	Silica, Flour	3D
Corn, Shelled	8A	Sludge, Sewage Dried	1A
Diatomaceous Earth	7A	Sludge, Sewage, Ground	1A
Drill Mud	3D	Soda Ash	3D
Flour	7B	Soybeans, Cracked	3D
Fly Ash	3D	Soybean, Flake	7A
Glass Batch	3D	Soybean, Flour	7A
Gravel	3D	Soybean Meal	3D
Iron Ore, Crushed	3D	Soybean, Whole	3D
Kaolin Clay	3D	Sugar Beets, Whole	6H
Lime, Hydrated	5A	Sugar Refined	7B
Lime, Stone	3D	Sunflower Seed	7A
Oats	4B	Taconite Pellets	3D
Peanuts in Shell	7A	Talcum Powder	3D
Peanuts, Shelled	3D	Walnut Shells, Crushed	3D
Perlite	7A	Wheat	8A
Phosphate, Rock	3D	Wheat, Wet	5A
Polyethylene Powder	7A	Wood, Chips	6G
Polyethylene Resin	17	Wood, Dust	6G
Polypropylene Fluff	7A		

*Diaphragm codes become 4th and 5th characters in model number

SUSPENSION MOUNTING

Suspension mounting is normally used for high level monitoring in vessels. For product over 20 lb/ft³, the level switch (diaphragm face) should be located about 1/3 of the distance from the vessel wall to the point of entry of the product. For product less than 20 lb/ft³, the unit should be located closer to the point of entry of the product, about 1/2 the distance from the vessel wall to the point of entry. Pressure required to depress the diaphragm and trip the switch is in the range of 5 to 15 oz in the horizontal direction (perpendicular to the diaphragm). Suspension mounting provides the easiest vertical adjustment capability, greatest sensitivity and best maintenance conditions.



SUSPENSION ASSEMBLY KITS

Pre-assembled kits are available from the factory, or you can build your own kits using standard pipe fittings shown in our Proximity Bill of Materials (Form No. 101). Pipes and fittings are normally galvanized steel, but aluminum and SS pipes and fittings are available. Units are secured to a steel cover plate that rests on a rectangular steel flange welded into the top of the vessel. Aluminum and stainless coverplates and flanges are also available. Standard 48″ L x 1″ pipe provides working depth (WD) up to 48″. Longer pipe (to provide greater WD) is available. GS Series switches have upper (L1 = 28″ standard) and lower (L2 = 20″ standard) 1″ pipes, with a tee (for stilling pot) in between. A stilling pot is required to equalize pressure and keep dirt from building up behind the diaphragm. PS series require a 1/2″ conduit in 1″ suspension pipe for explosion-proof applications. The 1/2″ conduit (56″ standard length) is a standard part of the GS series assembly.

MODEL CHART - ALUMINUM FLANGE ADAPTER RINGS			
Model	**Tank Outside Diameter**	**Model**	**Tank Outside Diameter**
126-009	15″	**126-016**	84″
126-010	30″	**126-017**	96″
126-011	36″	**126-018**	10′
126-012	42″	**126-019**	12′
126-013	48″	**126-020**	14′
126-014	60″	**126-021**	24′
126-015	72″		

MODEL CHART - "P" AND "G" SERIES SUSPENSION ASSEMBLY KITS	
Model	**Description**
901-409	″P Series suspension assembly includes 1/2″ pipe (56″ std length), 1″ pipe (48″ std length), 1″ pipe coupling, 1-1/2 NPT strain relief on 1″ pipe. Galvanized mild steel pipe, explosion proof, standard.
901-412	″G″ Series suspension assembly includes 1/2″ pipe (56″ std length), watertight strain relief and 1″ coupling, upper 1″ pipe (28″ std length), lower 1″ pipe (20″ std length), strain relief with 1-1/2″ NPT, 1″x1″x1″ Tee, 1″ street ell and 1″ pipe-4″ long stilling pot. Galvanized steel pipe, explosion proof, standard.
Note: Specials include aluminum or stainless steel assemblies. Flange port and cover assemblies are sold separately. Consult factory for details.	

MODEL CHART									
Example	**E**	**-X**	**-G**	**-S**	**-D**	**-3D**	**-A**		**E-X-G-S-D-3D-A***
Certification 1	E								Explosion-proof ultra mag™ level switches
Certification 2		EX X							Explosion-proof (UL & CSA) Class I, Div I & II, Groups C & D; Class II, Div I & II, Groups E, F, & G Explosion-proof (CSA) Class II, Div I & II, Groups F & G General purpose (no code)
Basic Magnetic Pressure Sensing Series			G P						Elastomeric diaphragm-venting required*. (Diaphragms 1A - 8A) Breathable fabric diaphragm-no venting required. (Diaphragms 16 & 17 only)
Mounting (Top = Suspension/ Side = Flanged)				S F T					Suspended (G series require suspension vent fittings)* Subtract 10 lbs./cu. ft.-greater sensitivity Flanged, aluminum standard Flanged, 304 SS
Housing Material					D A E				Aluminum Aluminum, anodized Aluminum, epoxy coated
Diaphragm Material (Temperature) (Bulk Density)						3D 3E 4B 5A 6D 6E 6G 7A 7B 8A 16 17			Urethane, .031″ thick, (10 to 150°F), (> 30 lb/ft³) Urethane, orange, .062″ thick, (10 to 150°F), (> 90 lb/ft³) Buna-N, black, .020″ thick, (-20 to 212°F), (20 to 90 lb/ft³) PTFE/glass on silicone rubber, .024″ thick, (-40 to 350°F), (> 35 lb/ft³) Silicone rubber, gray, .062″ thick, (-40 to 350°F), (15 to 30 lb/ft³) Silicone rubber on glass, red, .032″ thick, (-40 to 350°F), (> 90 lb/ft³) ″6C″ w/urethane overlay, (-40 to 350°F), (wood chips diaphragm with ″A2″) Silicone rubber on glass (White), .015″ thick, (-40 to 350°F), (5 to 40 lb/ft³) Buna-N (food applications-white), .060″ thick, (-20 to 212°F), (30 to 90 lb/ft³) EPDM, black, .036″ thick, (-40 to 275°F), (40 to 90 lb/ft³) Polyester filter fabric, white, 150 micron permeability, (-30 to 275°F), (30 to 90 lb/ft³) Polyester nitex, white, 15 micron permeability (-30 to 275°F), (30 to 90 lb/ft³)
Switch Type							A T V G		Standard, SPDT, 15 A @ 125, 250 VAC High temp, SPDT, 5 A @ 125, 250 VAC; 24 VDC** High vibration, SPDT, 15 A @ 125, 250 VAC Gold contacts, SPDT, 1 A @ 125 VAC, 1/2 A @ 24 VDC
Special Controls								A2 A3	Wood chip control (with ″6G″ diaphragm only) High sensitivity actuator (for very light product)
*GS - G series suspended controls require suspension vent fittings. **Non-UL/CSA listed									
Note: The ″EX″ prefix must he added to the 6-digit model number for ″explosion-proof standard″. General purpose units do not require the ″EX″ or other prefix.									