# Point Level Control for Free Flowing Material

diaphragm switch is designed for use with free-flowing, dry granular or pelleted material being stored in bins, silos or hoppers. Mounted inside or outside of the bin, the diaphragm switch – also called a pressure switch – can be used for detecting high, intermediate or low levels of material. The device is connected to a light, horn or point level alarm panel and activates an alert when material comes into contact with, or falls away from, the diaphragm switch.

## For Non-Hazardous and Explosion Proof Applications

Made with pride in USA this diaphragm switch features simple, rugged construction at a very affordable cost. Internal or external mounting options are available, with the external mounting option requiring a hole be cut in the bin wall. There are also several options for the diaphragm cover including standard and heavy duty neoprene, neoprene with nylon mesh or heavy duty silicone. The BM45 model is designed for non-hazardous installations, while the BM65 is appropriate for explosion proof applications.

## Simple, Reliable Operation

The diaphragm switch features a simple operating mechanism making it highly reliable and requiring minimal maintenance. It operates by sensing material pressing against a switch as the bin fills. When material comes into contact with the pressure switch, it activates a sensitive microswitch which can be wired to a visual alarm, such as a light or an audible alarm, such as a horn. It can also be wired to stop or start a process when materials reach a desired level.

# Diaphragm Switch

# Diaphragm Pressure Sensitive Level Indicators

The BM45 series is a general purpose, economical indicator designed for non-hazardous applications. The BM65 series has the same operating benefits as the BM45 series, but is designed for use in hazardous atmospheres charged with combustible dust. The BM65 series is listed for Class II, Groups E, F and G. Both models are available for either internal or external mounting. Internally mounted models are easy to install, while the externally mounted permits mounting of the entire unit outside the bin, making the operation mechanism easily accessible.


BM45 and BM65 models using the heavy duty neoprene, neoprene with nylon mesh and silicone diaphragms have a thicker .031" diaphragm and a snap-action switch which is less sensitive than the standard switch. These units are intended for use with heavier materials and low level installation within the bin. The silicone diaphragm is designed to remain more resilient and sensitive in extreme temperature conditions.

| Model | Mounting | Diaphragm Material | Temperature | Bulk Density | Location |
|---|---|---|---|---|---|
| BM45-R | Internal | Neoprene, Black, .016" Thick | -30 to 220º F | 10 to 40 lb./cu. ft. | Non-Hazardous |
| BM45-RH | Internal | Neoprene, Black, .031" Thick | -30 to 220º F | 15 to 60 lb./cu. ft. | Non-Hazardous |
| BM45-RHT | Internal | Silicone, Grey, .031" Thick | -40 to 350º F | 15 to 40 lb./cu. ft. | Non-Hazardous |
| BM45-F | External | Neoprene, Black, .016" Thick | -30 to 220º F | 10 to 40 lb./cu. ft. | Non-Hazardous |
| BM45-FH | External | Neoprene, Black, .031" Thick | -30 to 220º F | 15 to 60 lb./cu. ft. | Non-Hazardous |
| BM45-FHT | External | Silicone, Grey, .031" Thick | -40 to 350º F | 15 to 40 lb./cu. ft. | Non-Hazardous |
| BM65-R | Internal | Neoprene, Black, .016" Thick | -30 to 220º F | 15 to 60 lb./cu. ft. | Hazardous |
| BM65-RH | Internal | Neoprene with Nylon Mesh, Black, .020" Thick | -30 to 275º F | 15 to 90 lb./cu. ft | Hazardous |
| BM-65-RHT | Internal | Silicone, Grey, .031" Thick | -40 to 350º F | 15 to 60 lb./cu. ft. | Hazardous |
| BM65-F | External | Neoprene, Black, .016" Thick | -30 to 220º F | 15 to 60 lb./cu. ft | Hazardous |
| BM65-FH | External | Neoprene with Nylon Mesh, Black, .020" Thick | -30 to 275º F | 15 to 90 lb./cu. ft | Hazardous |
| BM65-FHT | External | Silicone, Grey, .031" Thick | -40 to 350º F | 15 to 60 lb./cu. ft. | Hazardous |

- **Neoprene** — is a type of synthetic rubber. Neoprene has a variety of properties that make it quite useful, including being abrasion-resistant, chemical-resistant, waterproof, stretchable and buoyant.
- **Silicone Rubber** — offers the best long term resistance to environmental extremes. The chemical, electrical, and mechanical properties of silicones remain virtually unchanged at temperatures from -160º to 500º F.
- **Neoprene with Nylon Mesh —** has outstanding resistance to most chemicals, heat, and oils. Further, it is flame resistant, offers excellent color stability, weather resilience and extremely high abrasion resistance. Low moisture absorption and good dielectric qualities are among its other features.

KC SUPPLY

1.800.527.8775

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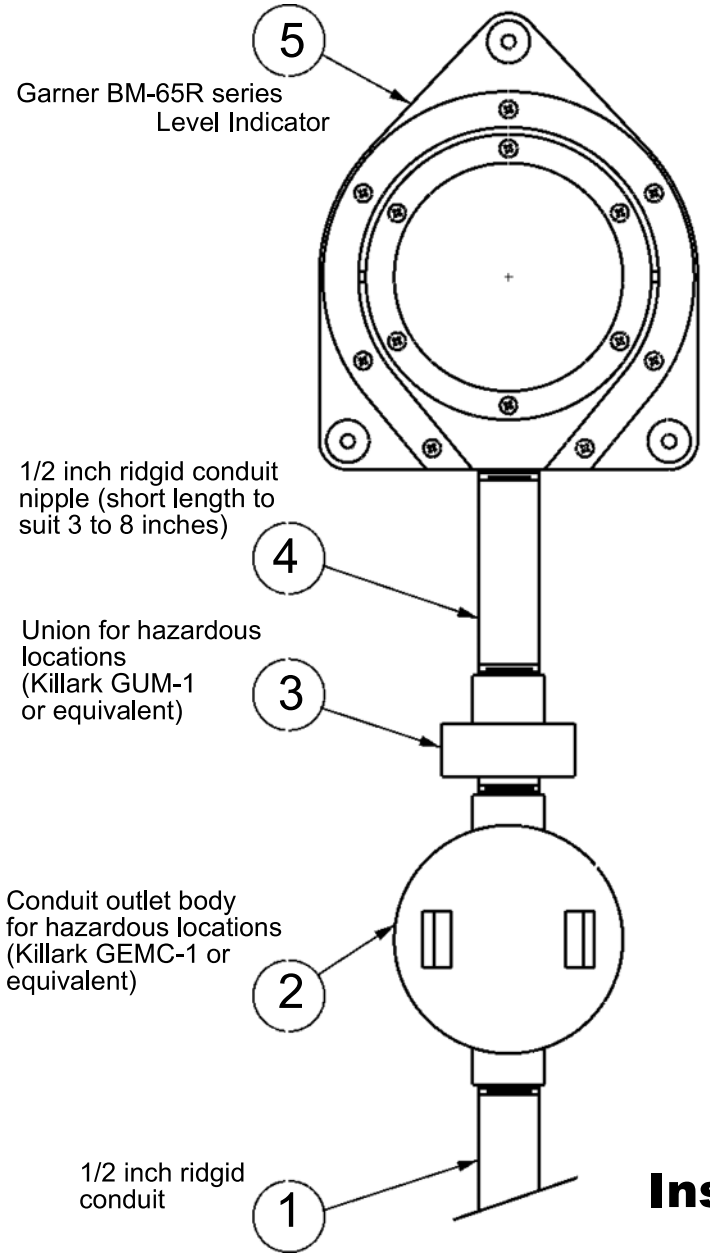
**Products Used In**

| | | |
|---|---|---|
| Aggregates | Fly Ash | Rye |
| Alumina | Gravel | Salt |
| Dry Ash | Kaolin Clay | Sand, Dry |
| Bark, Ground | Lime, Hydrated | Sand, Silica |
| Barley, Ground | Limestone | Sawdust |
| Barley, Whole | Oats | Sesame Seed |
| Bentonite | Peanuts, in Shell | Soybeans, Cracked |
| Carbon Black | Peanuts, Shelled | Soybean Meal |
| Cement, Clinker | Polyethylene Powder | Soybean, Whole |
| Cement, Portland | Polyethylene Resin | Sugar Beets, Whole |
| Coal | Polyethylene Beads | Sunflower Seed |
| Foundry Sand | Potash | Wheat |
| Corn, Shelled | PVC Powder | Wood Chips |
| Diatomaceous Earth | PVC Resin | Wood, Dust |
| Flour | Rice | Wood, Pellets |

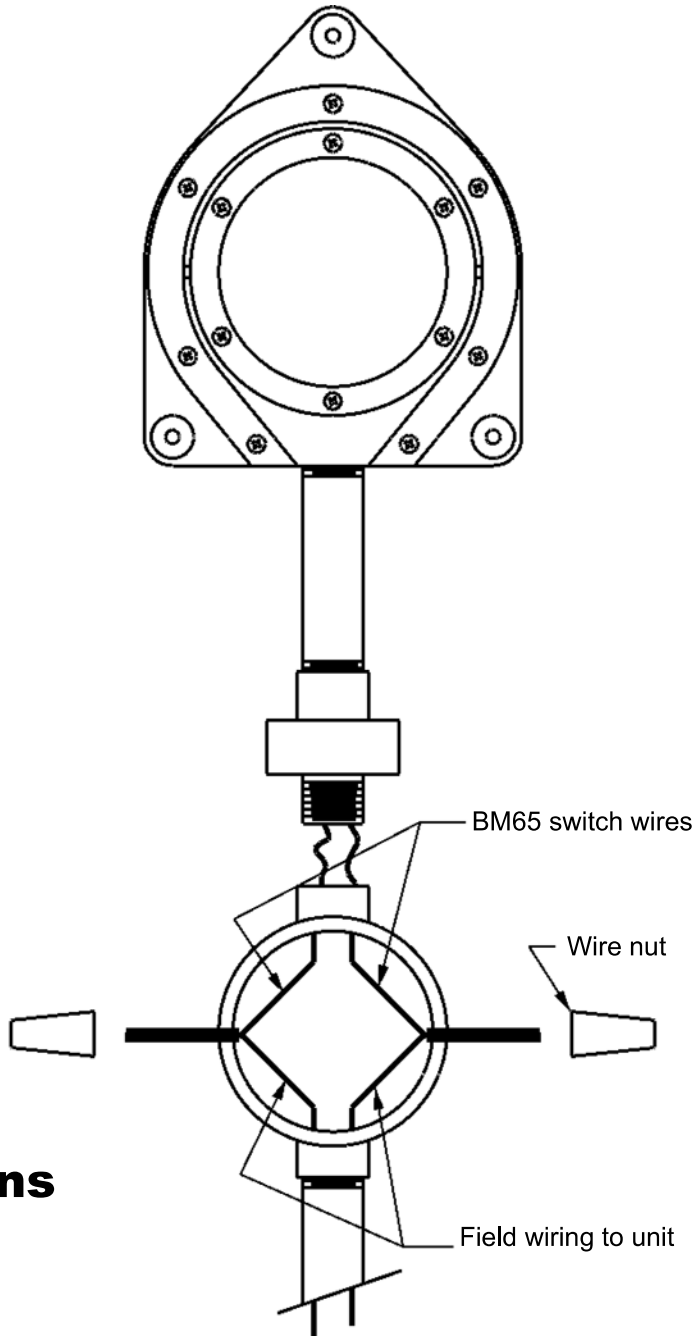



**Safety Warning:** When using in atmospheres containing dust, the wiring to this unit must conform to the National Electrical Code for Class II, hazardous locations. Contact a qualified electrician.

**Note:** For proper operation, the BM65 must be mounted such that the rear cover plate is vertical.

**Suggested Installation Procedure:**

1. Remove the rear cover from the BM65. (Use care not to scratch or nick the mating surfaces. These surfaces are accurately finished to assure safe seal.)
2. Connect short lengths of wire to the desired switch terminal in the BM65. The lengths of these wires should be the length of the conduit nipple used (4) plus about 10.00 inches.
3. Feed the switch wire through the nipple (4) and tighten the nipple into the BM65 housing.
4. Replace the rear cover, again exercise care not to damage the mating surfaces.
5. Pass the switch wires through the union (3) into the outlet body (2). Tighten the union onto the nipple (4) and outlet body
6. The BinMaster can now be fastened to the bin wall using four screws through the holes provided in the mounting plate.
7. Connection of the switch wires to the field wiring is accomplished at the outlet body (2). Be certain to tighten the cap on the outlet body.




# Installation Instructions
## BM65R Series

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9270136.dgn