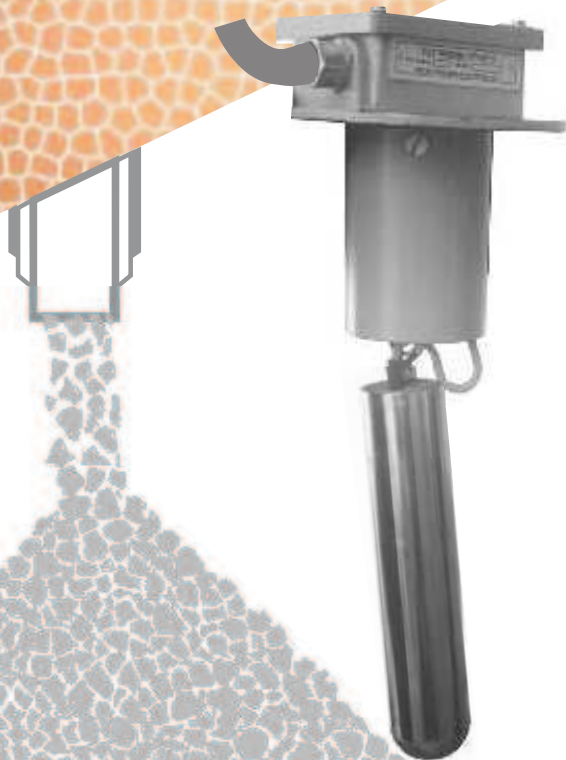


# TILT SWITCH



For  
Sensing Level of  
Bulk Materials

## INTRODUCTION

Sensing Level of bulk material stored in open yard or in a bunker is not possible by conventional capacitance type level sensors. JAYASHREE Tilt Switch gives a correct solution for sensing level of such material. Hundreds of Tilt Switches are in operation for several years.

## APPLICATION

The Tilt type switch is useful for monitoring levels of bulk material such as limestone, coal lumps and iron ore. A special version of Tilt Switch is useful for monitoring levels of light bulk material such as fertilizers, plastic granules, foodgrains and certain type of liquids.



# TILT SWITCH

## WORKING PRINCIPLE

Any free falling material has its own angle of repose when being stacked at an open space or in a bunker. The Tilt Switch consists of a monitoring unit and a tilt probe. The tilt probe is hanged near the desired top level sensing position. The tilt probe has a built-in special mechanical arrangement with a precision electronic circuit to give a signal when the probe tilts beyond the pre-set angle from the vertical. The signal from probe is monitored by control unit and an output relay is operated to control external circuit.

## CONSTRUCTION

The Tilt Switch consists of two parts:

### (A) Monitoring Unit (B) Tilt Probe

#### (A) Monitoring Unit :

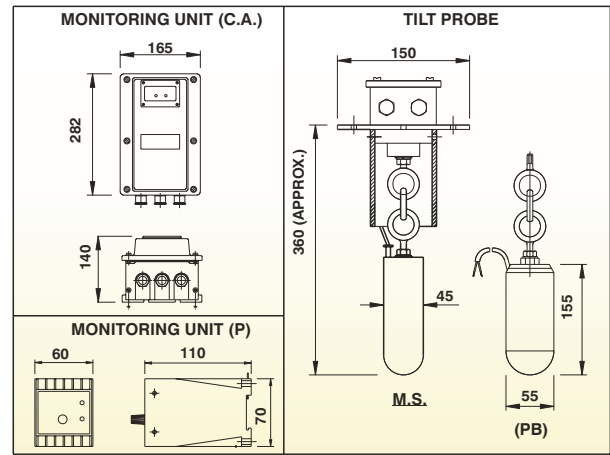
The monitoring unit is available in a heavy duty robust cast aluminium enclosure for mounting in an outdoor environment and meets IP 65 grade of protection. The unit is also available in plastic IP 30 grade protection enclosure for mounting inside a control panel. Both the types incorporate an electronic circuit to provide a nuisance tripping delay to avoid unwanted signals due to swaying of the tilt probe. Suitable terminals are provided for interconnections.

#### (B) Tilt Probe :

Tilt probes are available in two basic enclosures :

- i) Heavy duty with metal enclosure for sensing coal lumps and similar bulk material level.
- ii) Light duty in plastic moulded enclosure for fertilizers and similar material.

The tilt probe is generally provided with 100 mm long chain link with a mounting flange and IP 65 grade terminal box for mounting near desired top level position. The tilt probe has only two wires for connection. The signal from tilt probe should be connected to the control unit by a separate two core shielded cable of at least 1.5 sq.mm size. The monitoring unit can be kept at a distance up to 100 mtrs from the Tilt probe. The Tilt probe is totally sealed with epoxy to meet IP 67 grade of protection.



## STANDARD SPECIFICATIONS

Supply Voltage	: 24 V / 48 V / 110 V, 240 V / AC / DC
Time delay range	: 0.5 - 10sec.
Tilt Angle	: Pre-set angle of 15° / 20° / 30°
Ambient Temperature:	: 55° C maximum
Output Contacts	: 1 NO + 1 NC
Contact Rating	: 5A resistive at 240 V, AC

## STANDARD MODELS

Type	Details
SW 4211 / CA / MS	CA enclosure with MS Probe
SW 4211 / CA / PB	CA enclosure with plastic probe
SW 4211 / P / MS	Plastic enclosure with MS Probe
SW 4211 / P / PB	Plastic enclosure with plastic Probe

## SPECIAL MODELS

Special type of units to work in hazardous environment can be supplied with CMRI approved flameproof enclosures.

### Ordering information :

Please give following data while placing order

1. Supply Voltage
2. Tilt Angle
3. Output Contacts
4. Density & type of material being handled
5. The average particle / grain / lump size
6. Angle of repose

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