

## LS SERIES TIP SWITCH

### Description

Ampcontrol Type LS Tip Switches are a dependable and versatile means of monitoring flow and high levels in bulk materials. The probe is completely sealed and self-contained with a built-in time delay, in most cases eliminating the need for costly external circuitry, relay amplifiers and time delay relays.

Construction is of a very robust nature and is unaffected by vibration due to the patented hydraulic dampening device. No mercury switch is used in the probe construction making it particularly safe in the food processing industries. The Tip Switches can be adapted to suit many applications and a variety of materials.

### Features

- Rugged, light and heavy duty probes for a wide range of applications
- Built in time delay
- Does not require costly relay amplifiers, time delay circuitry and associated wiring.
- Unaffected by vibration
- Contains no mercury
- Versatile, can be used with coarse or fine materials

### Operation

Movement in any axis of approximately 15° initiates Tip Switch actuation. When tilted a built-in micro switch is actuated by a unique patented dampened pendulum movement. The high rating of the switch permits it to be wired directly to a conveyor/feeder starter or alarm system. Four core flexible cable is used with common, normally open, and normally closed and earth connections.

### General Comments

The use of a mechanical switch has advantages when used in a device with a wide application such as the LS Series Tip Switch. It can be used for AC or DC circuits and with considerable variation in voltage and current ratings. However, it is possible to inadvertently overload the switch, particularly when used for switching AC contactors and relays.

Overloading of the switch occurs due the high inrush current of modern contactors. This problem is compounded when the switch is used in an environment where it is subject to frequent operation, although the inbuilt time delay of the Tip Switch helps in this regard. To avoid overloading the switch, refer to 'Recommended Rating and Snubber Circuits' section below.

### Recommended Rating and Snubber Circuits

To obtain maximum life from a Tip Switch it is suggested that certain additional precautions be adopted.

It is recommended that when used with AC contactors and relays, the maximum rating of the switch can be regarded as 3 Amps.

Contactors having a pull-in (inrush) rating of greater than 750VA should not be used without an interposing relay. It is good practice to use an interposing relay wherever the use of a large contactor is being considered.

In applications where the Tip Switch switches a contactor or relay having a hold-in rating of greater than 50VA, a Snubber circuit should be connected across the appropriate Tip Switch contacts.

A suitable Snubber can be either a Resistor or Capacitor connected in series or a Voltage Dependent Resistor.

An RC-Snubber can be made with typically a 100 Ohm resistor (1 watt) and 0.1µF capacitor. This combination can often be obtained potted in a contactor suppressor assembly. Note the capacitor voltage rating must be suitable for the AC peak applied voltage.

Voltage dependent resistors of the "Zinc Oxide Varistor" type are also recommended, but exact ratings must be ascertained from the manufacturer's data after contact size and coil voltage is known.

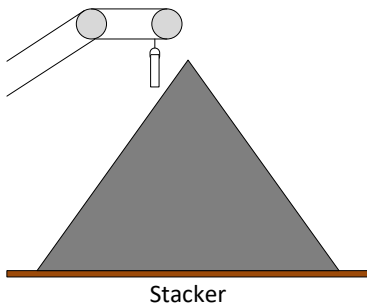


When the Tip Switch is used in conjunction with static low voltage DC signals such as PLC inputs, special low voltage switches fitted with gold contacts should be used, refer to "Part List" and "Contact Ratings" for LV models.

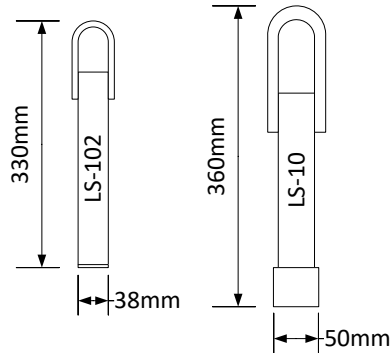
### Typical Application & Possible Installation Method

The Tip Switch should be hung vertically, clear of the belt and main flow of material, so that in a trip condition the unit is tilted, and the contacts will change state to either alarm or cause an operational change.

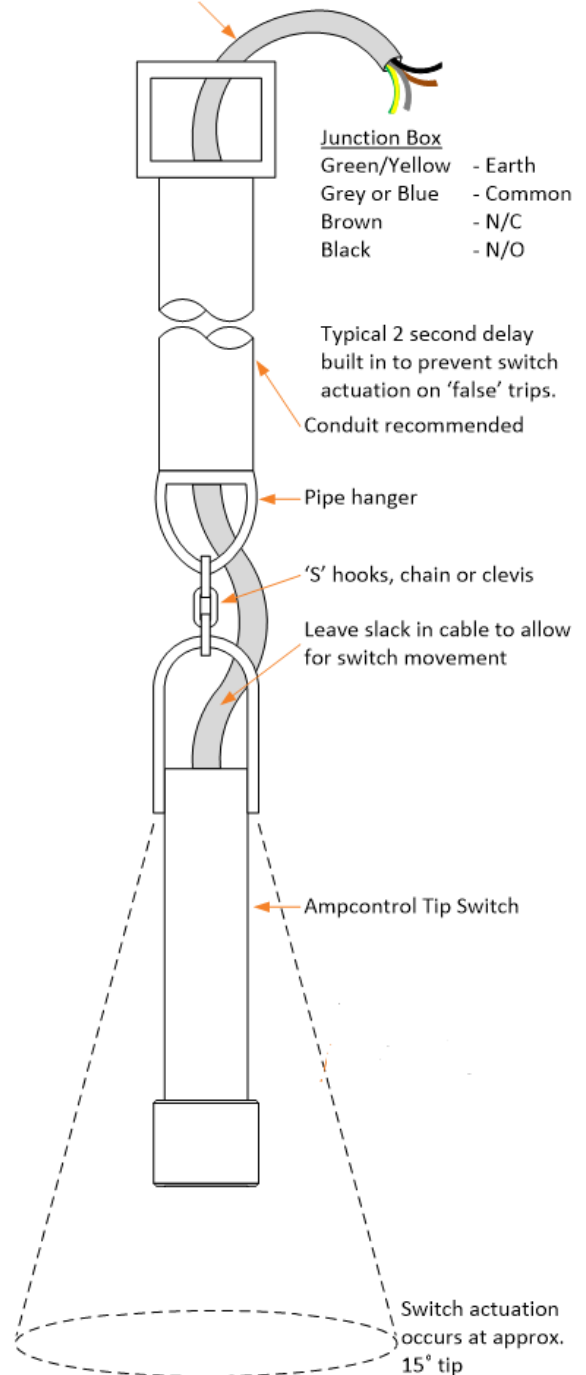
Typical Application



Dimensional Drawing



PVC Insulated Steel Wire Braided Cable (10m Standard Length)



### Specifications

Standard Range	
Model LS-102	304 Stainless Steel. Weight 900g.
Heavy Duty Range	
Model LS-10 Standard	304 Stainless Steel. Weight 1.8kg.
Model LS-10 Tagged	316 Stainless Steel. Weight 1.8kg.
General	
Operating Angle	15° to 20° from vertical in any axis
Time Delay	Hydraulic, fixed at 2 seconds
Operating Temperature	-30°C to 60°C
IP Rating	IP66
Contact Ratings	
Standard Models	1x Snap Action SPDT sealed. Rated at 5A resistive at 250VAC
LV Models	1x Snap Action SPDT sealed. Rated at 100mA resistive at 28VDC
Cable Details	
Cable Type	4 Core 1mm <sup>2</sup> PVC Insulated (Braided)
Cable Insulation Rating	> 500 MΩ.km
Standard Cable Length	10m (greater lengths available on request)
Parts List	
174513*	TIPSWITCH LS102 LOW VOLTAGE 10m SS
115344*	TIPSWITCH LS10 LOW VOLTAGE 10m SS
101647	TIPSWITCH LS102 STANDARD 10m SS
101648	TIPSWITCH LS10 STANDARD 10m SS
192073*	TIPSWITCH LS10 LV/10 SS316 C/W BLANK TAG
192074*	TIPSWITCH LS10 LV/10 SS316 C/W CUST TAG
*Only these parts can be used with iMAC input modules. See the IMACB094 iMAC Installation Requirements document for more details.	
Accessory List	
106132	SNUBBER SURGE SUPPRESS GMOV 110V MAX
Find Out More	
For more information on this product, contact Amcontrol Customer Service on +61 1300 267 373 or <a href="mailto:customerservice@ampcontrolgroup.com">customerservice@ampcontrolgroup.com</a> or visit the Amcontrol website: <a href="http://www.ampcontrolgroup.com">www.ampcontrolgroup.com</a>	

### DISCLAIMER

While every effort has been made to assure the accuracy of this document at the date of issue, Amcontrol assumes no liability resulting from any omissions or errors in this document, and reserves the right to revise content at any time.