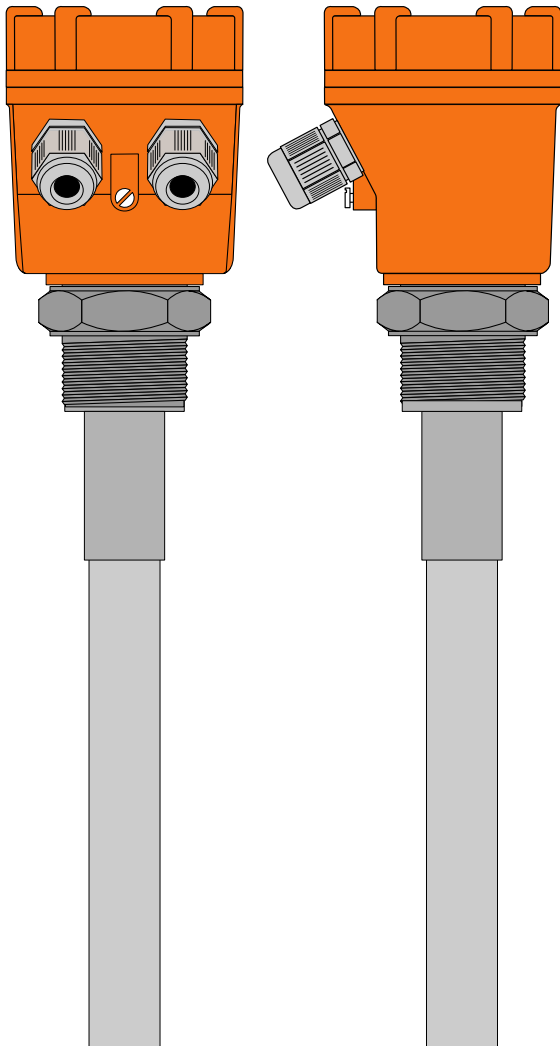


# LMC: Capacitance Type Level Limit Switch



## Instruction Manual



### Introduction

- controls & indicators
- connection terminals
- configuration switches

### Calibration

- single point
- two point (pump control)

### Failsafe Installation

- failsafe selection
- electrical connections (AC)
- electrical connections (DC)

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**Trumen Technologies Pvt. Ltd.**

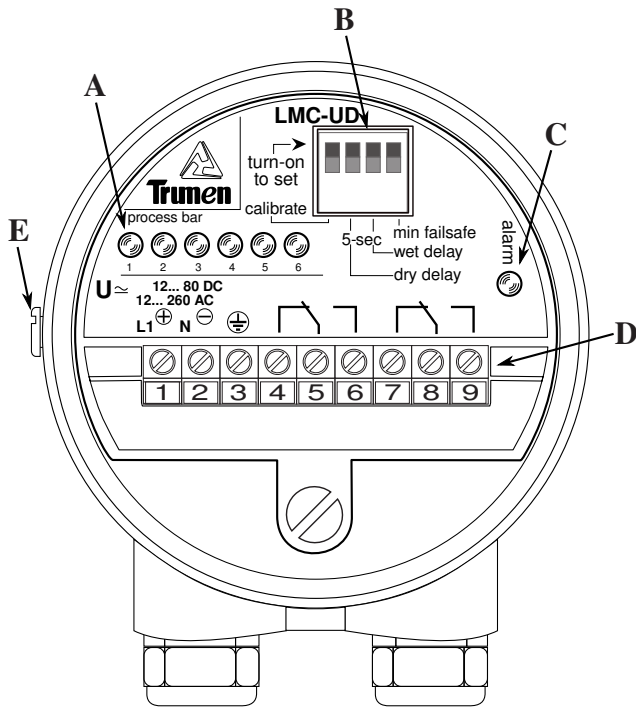
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# Introduction



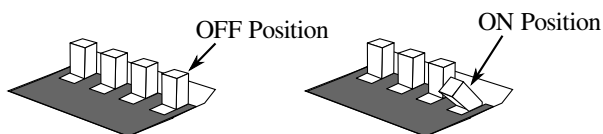
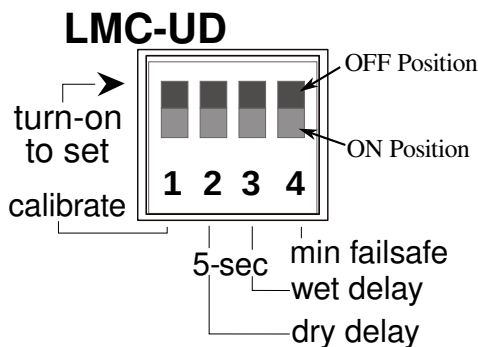
## controls & indicators

- A Process indicating LED bar.
- B Configuration switches.
- C Alarm indication.
- D Connecting terminals
- E External earthing terminal

## connection terminals

- 1 + of DC or Live of AC Supply input
  - 2 - of DC or Neutral of AC Supply input
- Supply:  
12 to 80VDC or 12 to 260VAC 50/60Hz
- 3 Supply earth terminal for safety
  - 4 Normally connected terminal of contact 1
  - 5 Common terminal of contact 1
  - 6 Normally open terminal of contact 1
  - 7 Normally connected terminal of contact 2
  - 8 Common terminal of contact 2
  - 9 Normally open terminal of contact 2

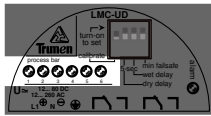
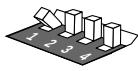
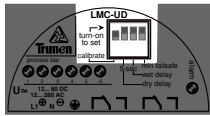
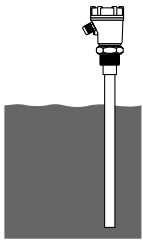
## configuration switches



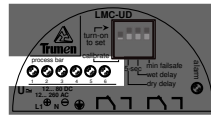
Example of Switch in On and Off Positions

- 1 “calibrate” switch: This switch allows calibration in two calibration modes:
  - 1.1 Single Point (switches 2 & 3 must be open)
  - 1.2 Pump Control (requires switches 2 & 3)
 Please refer next page for calibration process.
- 2 “dry” (or uncovered) delay switch. During normal operation, this switch is turned ON if 5 second uncover delay is required. During 'pump-control' calibration this switch is turned ON to set low switching point.
- 2 “wet” (or covered) delay switch. During normal operation, this switch is turned ON if 5 second covered delay is required. During 'pump-control' calibration this switch is turned ON to set high switching point.
- 4 “minimum” failsafe select  
 Failsafe means alarm is same as power failure.  
 Failsafe=high (maximum) for overflow detection (device will give alarm in covered condition)  
 Failsafe=low (minimum) for underflow detection (device will give alarm in covered condition)

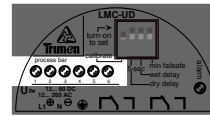
# Calibration (Single Point)



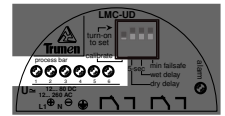
All LEDs On



6th LED Blinking



6th LED Off



4th, 5th & 6th LED Off

Fill the material up-to the switch point level

Turn "calibrate" switch ON  
Make sure that switch 2 & 3 are OFF (as shown above)

All LEDs of process bar will turn ON. This indicates that current level recognized as switching level.

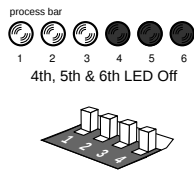
6th LED will then start blinking. This means that the device is setting itself 1/2 pF insensitive to current material level.

6th LED will then turn ON. This means that the device is setting itself 1 pF insensitive to current material level.

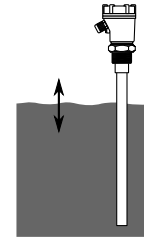
This sequence will repeat itself. When 4th,5th,6th LEDs are off, the device has set itself 3 pF insensitive to current material level.

process bar  
1 2 3 4 5 6  
4pF 2pF 2pF 1pF 1pF 1pF

Total 11pF insensitivity for single point switching

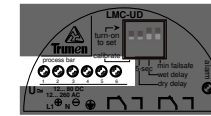
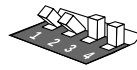
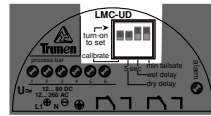
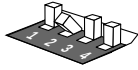
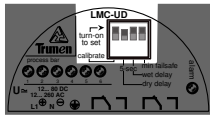
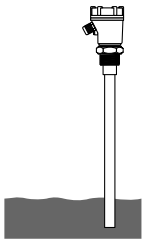


When required insensitivity is reached (3pF is most common setting) Turn "calibrate" switch OFF.

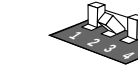
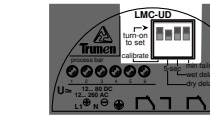


device is now ready for use as single point level switch.

# Calibration (Two-Point or Pump Control)



LED 1 blinking, other LEDs Off



Empty the material down to the required low switch point level

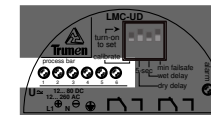
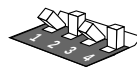
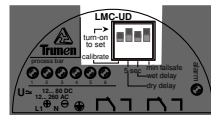
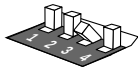
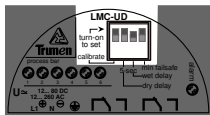
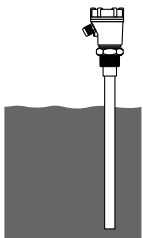
Turn dry delay switch ON  
Make sure that switch 1 & 3 are OFF (as shown above)

Turn calibrate switch ON  
Make sure that switch 3 is OFF (as shown above)

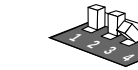
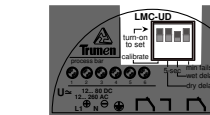
LEDs will turn off, only LED 1 will blink. This shows that level is read as low level by device. wait for 3-4 seconds here.

Turn calibrate switch OFF. This sequence of turning off the switches is important

Turn dry delay switch OFF. Low level for two-point (pump control) has been calibrated.)



LED 6 blinking, other LEDs ON



Fill the material up-to the required high switch point level

Turn wet delay switch ON  
Make sure that switch 1 & 2 are OFF (as shown above)

Turn calibrate switch ON  
Make sure that switch 2 is OFF (as shown above)

LEDs will turn on, only LED 6 will blink. This shows that level is read as high level by device. wait for 3-4 seconds here.

Turn calibrate switch OFF. This sequence of turning off the switches is important

Turn wet delay switch OFF. High level for two-point (pump control) has been calibrated.)  
Device is ready for use.

Low Level

Mid Level

High Level

When device is calibrated in two-point (or pump control) process bar LEDs will follow material level while in use.

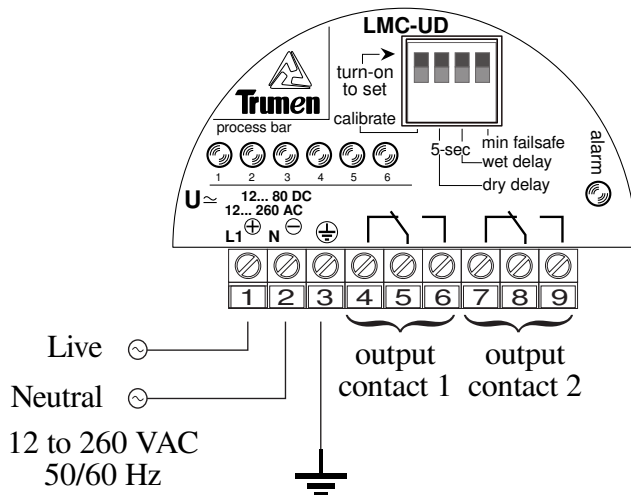
# Failsafe Installation

## failsafe selection

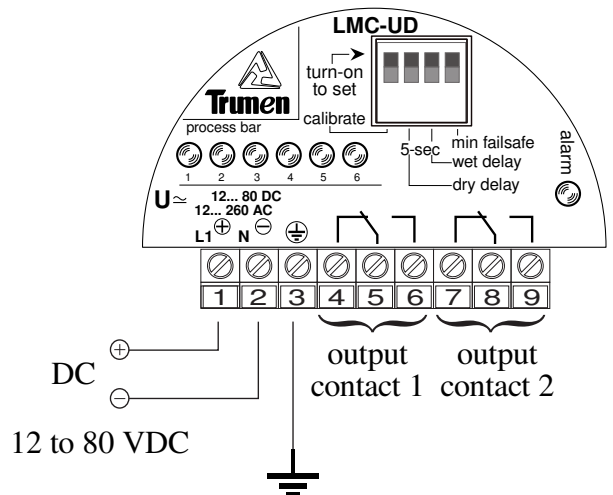
Failsafe defines that the alarm and power failure / device failure conditions are same to the external system. Failsafe operation is best understood with the type of installation.

Material & installation	failsafe setting	alarm LED	Alarm	DPDT relay contacts
		○ Off	Normal	
		☀ On	Alarm	
		☀ On	Alarm	
		○ Off	Normal	

## electrical connections (AC)



## electrical connections (DC)



Proper connection to supply earth terminal (3) and the external earth terminal (screw) is must.