Capacitance Type Level Switch 114 MLS uses SBEM’s proven capacitance technology with the added feature of Microprocessor. It is a Single point switch, Weatherproof level switch. can be used in a variety of application for detecting / controlling level of solids / liquids when used with suitable probe unit.

**APPLICATIONS:**
Detecting / Controlling level of dry / moist, free flowing solids like Cement, clinker, limestone, coal, fly ash, foundry sand, iron ore, nylon / PVC chips, pellets, food grains, etc.

**FEATURES:**
- Surface/ Pipe mounting versions
- Built in Time delay and probe failure (Optional)
- One point switch.

**SPECIFICATIONS:**

**CONTROLLER UNIT:**
- **Power supply:** 115 VAC/ 230VAC/24VDC.
- **Relay contacts:**
  - 2 C/O, 5A @ 230VAC, Resistive
- **Versions:**
  - 1 – Level alarm (With time delay)
  - 2 – Level and probe failure alarm (Optional)
- **Fail safe feature:**
  - DIP switch settable fail safe high (FSH) or fail safe low (FSL)
- **Time delay:**
  - 0 – 200sec
- **Controls:**
  - Potentiometers to set: Level Alarms. Time Delay.
  - DIP- For setting level alarms.

- **Indications:**
  - Red LED for Level Alarms Bi-Color LED for Bi-colour LED for level above set point. Red LED for Probe failure (Optional).
- **Sensitivity:**
  - ± 0.5% of probe output
- **Environmental conditions:**
  - Temperature: -10° C to + 60° C
  - Relative Humidity: 0 % to 95 % (Non condensing)
- **Terminals:**
  - Suitable for 1.5 sq. mm size conductor (Max) (Refer Note. 5)

<table>
<thead>
<tr>
<th>Electrode</th>
<th>Duties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rigid Partially grounded</td>
<td>Dry solid, Nylon/PVC chips &amp; pallets, food grains, etc.</td>
</tr>
<tr>
<td>Dia.27 mm PTFE Insulated</td>
<td></td>
</tr>
<tr>
<td>Coat safe PTFE Insulated</td>
<td>Moist, free flowing solids, Cement, Fly ash, Bag filler, ESP Hoppers</td>
</tr>
<tr>
<td>Coatsafe high Temperature</td>
<td>Fly ash, Clinker</td>
</tr>
<tr>
<td>alumina insulated</td>
<td></td>
</tr>
<tr>
<td>GI Wire Rope Electrode</td>
<td>Dry Solids</td>
</tr>
</tbody>
</table>

**ELECTRODES:**

**Cable entries:** 1/2” NPT (F), 3/4” UNF (F)

**Location:** Suitable for installation in safe area.

**Enclosure:**
- Cast aluminum, Polyurethane painted,
- Weatherproof to IP-65

--- 1 ---
**ELECTRODE SELECTION GUIDE:**

<table>
<thead>
<tr>
<th>CODE NO.</th>
<th>ELECTRODE DESCRIPTION</th>
<th>SERVICE</th>
<th>PROCESS CONNECTION</th>
<th>MOC OF SENSING ELECTRODE</th>
<th>CONSTRUCTION</th>
<th>TRANS DUCER</th>
<th>ELECTRODE LENGTH (L mm)</th>
<th>HYS. mm.</th>
<th>OPERATING CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>14</td>
<td>RIGID PARTIALLY GROUNDED 27mm PTFE INSULATED</td>
<td>DRY SOLIDS, NYLON, PVC CHIPS &amp; PELLETS, FOOD GRAINS ETC</td>
<td>01</td>
<td>SS316</td>
<td>I</td>
<td>T910</td>
<td>V H</td>
<td>350 350 3000 600</td>
<td>50 60</td>
</tr>
<tr>
<td>95</td>
<td>RIGID PARTIALLY GROUNDED 27mm PTFE INSULATED</td>
<td>DRY SOLIDS, NYLON, PVC CHIPS &amp; PELLETS, FOOD GRAINS ETC</td>
<td>01</td>
<td>SS316</td>
<td>R</td>
<td>T910</td>
<td>V H</td>
<td>350 350 3000 600</td>
<td>50 60</td>
</tr>
<tr>
<td>92</td>
<td>COATSAFE PTFE INSULATED</td>
<td>WET SOLIDS, CEMENT, FLY ASH BAG FILLERS, ESP HOPPERS</td>
<td>01</td>
<td>SS316</td>
<td>I</td>
<td>T910</td>
<td>H</td>
<td>300 450 600</td>
<td>- -</td>
</tr>
<tr>
<td>96</td>
<td>COATSAFE PTFE INSULATED</td>
<td>WET SOLIDS, CEMENT, FLY ASH BAG FILLERS, ESP HOPPERS</td>
<td>01</td>
<td>SS316</td>
<td>R</td>
<td>T910</td>
<td>H</td>
<td>300 450 600</td>
<td>- -</td>
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<tr>
<td>94</td>
<td>COATSAFE HIGH TEMPERATURE ALUMINA INSULATED</td>
<td>FLY ASH CLINCKER</td>
<td>02</td>
<td>SS316</td>
<td>R</td>
<td>T910</td>
<td>H</td>
<td>300 450 600</td>
<td>- -</td>
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<tr>
<td>25</td>
<td>GI WIRE ROPE ELECTRODE</td>
<td>DRY SOLIDS</td>
<td>01</td>
<td>SS316</td>
<td>I</td>
<td>T910</td>
<td>V</td>
<td>1000 6000</td>
<td>- 80</td>
</tr>
</tbody>
</table>

**Notes:**
1. Separate ordering code for controller and Electrode is required for Remote mounting (Refer page 4).
2. V/H Indicates mounting orientation : V=Vertical, H= Horizontal.
3. I/R indicates construction :I= Integrated, R= Remote i.e 2 part system separate switch and probe unit.
4. Hysteresis varies as per process material sensed.
5. High temperature stand off (HTSO) is recommended for process temperature above 60°C.
   HTSO in SS 316: 60°C to 180°C, HTSO in CS & SINDANO: 180°C to 300°C.
   Remotely mounted transducer housing: 300°C to 600°C.
6. Cable between Probe head and Controller is 4 core shielded Tinned copper multistranded 3 X 0.5 sq.mm.
   100 Mtr.(Max.).
7. Slip on flanges with suitable threaded hole in required material e.g. CS/SS316/SS304, available optionally.
8. Size of Process connection is strictly as per “Electrode Selection Guide”.

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COAT-SAFE PRINCIPLE:
Normal probe may not perform satisfactorily if the process material builds up on the probe to a significant degree. The “coat-safe” electrode is designed to overcome this problem. In this type of electrode, in addition to the primary sensing electrode, a secondary “coat-shield” electrode, insulated from ground & primary electrode is used. This electrode is driven with signal of equal phase & amplitude as primary electrode. Hence when there is a coating / material buildup on electrode, no current flows between primary & secondary electrode. The electronic in strumnet measures the current that flows from primary electrode to ground. This means that build up is ignored. Only when the product level in the vessel rises & covers the primary electrode, it causes a current to flow which is sensed, demodulated, amplified & causes the switch to changeover.
Example of model code selection for Integral Mounting:
Model no.: 114 MLS IH1T1 01 92 L=0600
The above model code specifies that Capacitance Type Level Switch 114 MLS with Integral mounting, Non-intrinsically safe single point having cable entry of 1/2" NPT(F) & Power supply of 230 VAC. Process connection for this switch is 1" BSP(M) & Electrode is of following type i.e. Coatsafe PTFE insulated having length of 600 mm.

Model code selection for remote mounting switch and probe has to be separately ordered.

Controller: Model No.: 114 MLS SH1T1 00 00 XXXX
Capacitance type level switch 114 MLS Surface mounting, Non-intrinsically safe single point having cable entry of 1/2" NPT(F) & power supply of 230 VAC.

Electrode: Model No.: 114 MLS XXXX0 01 95 0600
Coatsafe PTFE insulated having 1" BSP(M) process connection & 600 mm Length.

APPLICATION DRAWINGS:

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