



**CAPACITANCE TYPE LEVEL SWITCH FOR SOLIDS  
114 MLS**

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)



- 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

**ELECTRODES :**

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

**ORDERING CODE :**

**114 MLS -**

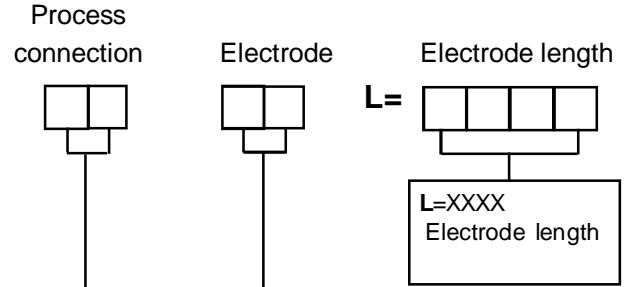
**Construction:**  
**I** - Integral Weatherproof  
**Remote head Weatherproof**  
**S**-Surface mounting with remote head  
**P**-Pipe Mounting with remote head

**Safty:**  
**H**-Non Intrinsically safe.

**Versions:**  
**1**-One Pt.  
**2**-One Pt.+ PF Alarm

**Cable entry:**  
**T**-1/2" NPT (F)  
**F**- 3/4" NPT (F)

**Power Supply:**  
**0** - Not applicable  
**1** - 230 VAC  
**2** - 115 VAC  
**3** - 24 VDC



**Electrode code:**  
**00** - Not applicable  
**XX** - Refer table

**Process connection:**  
**00** - Not applicable  
**01** - 1" BSP(M)  
**02** - 1 1/2" BSP(M) (Ref.note 1&2)

**Note:**  
 1. Slip on flange of appropriate size order separately.  
 2. Size of process connection is strictly as per electrode selection guide.

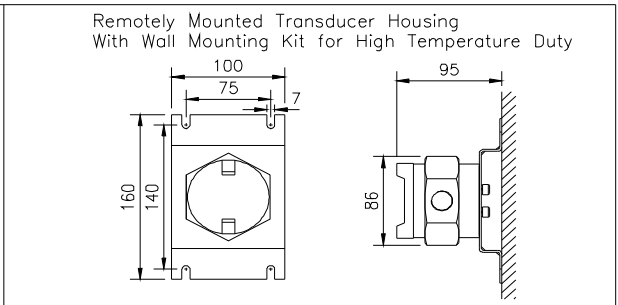
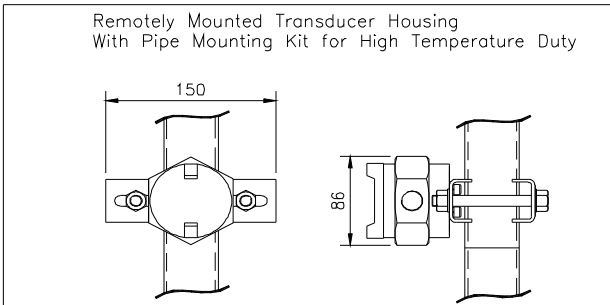
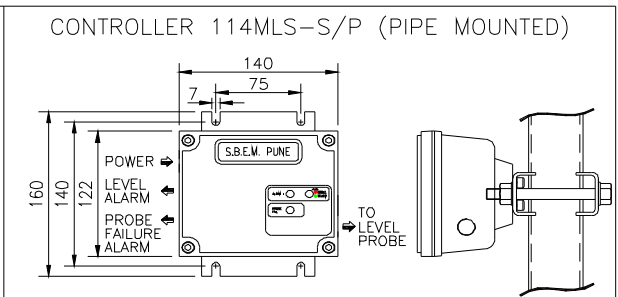
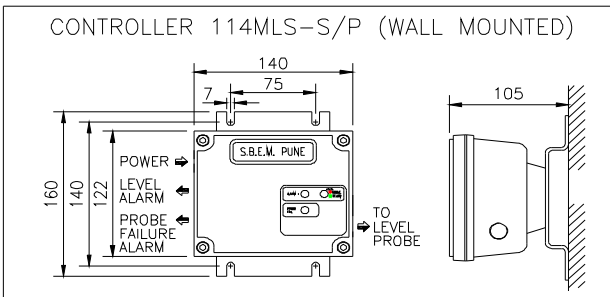
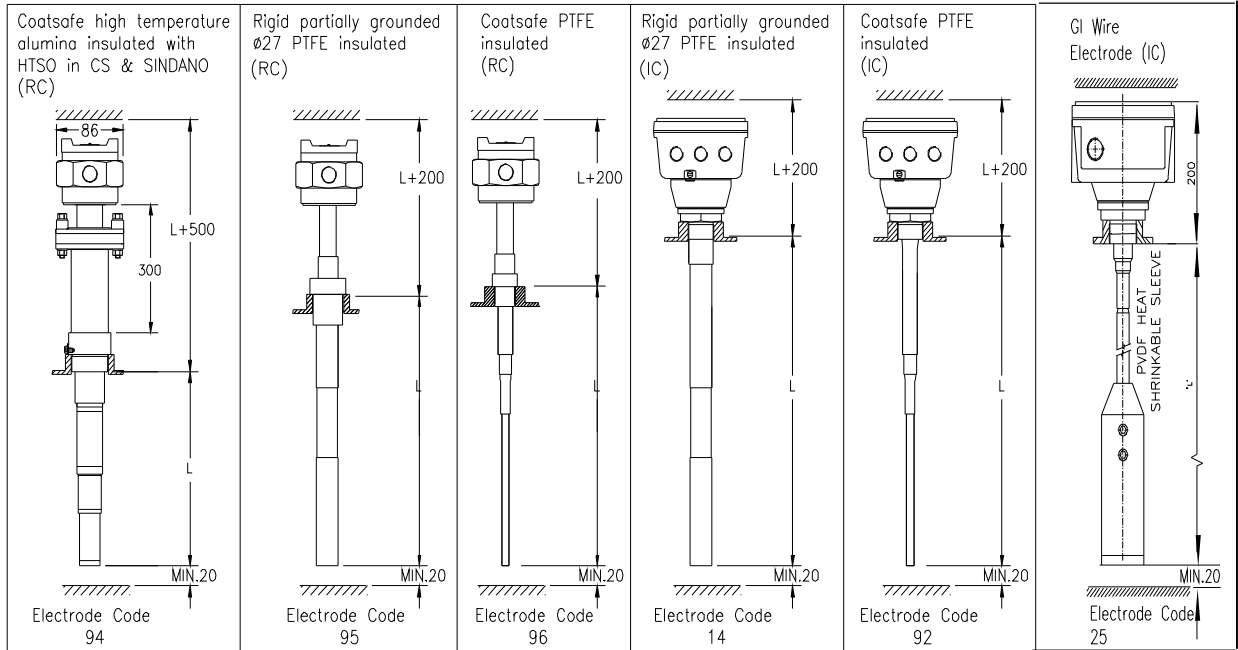
**ELECTRODE SELECTION GUIDE :**

CODE NO.	ELECTRODE DESCRIPTION	SERVICE	PROCESS CONNECTION		MOC OF SENSING ELECTRODE	CONST RUCTION I/R	TRANS DUCER	MTG. V H	ELECTRODE LENGTH ('L' mm)		HYS. mm. TYP.	OPERATING CONDITIONS	
			THD.						MIN.	MAX.		TEMP. IN °C MAX.	PRES. IN Kg/cm² MAX.
14	RIGID PARTIALLY GROUNDED 27MM PTFE INSULATED	DRY SOLIDS ,NYLON,PVC CHIPS&PELLETS,FOOD GRAINS ETC	01		SS316	I	T910	V H	350 350	3000 600	50	60	ATM
95	RIGID PARTIALLY GROUNDED 27MM PTFE INSULATED	DRY SOLIDS ,NYLON,PVC CHIPS&PELLETS,FOOD GRAINS ETC	01		SS316	R	T910	V H	350 350	3000 600	50	180	ATM
92	COATSAFE PTFE INSULATED	WET SOLIDS,CEMENT,FLY ASH BAG FILLERS,ESP HOPPERS	01		SS316	I	T910	H	300 450 600		- - -	60	ATM
96	COATSAFE PTFE INSULATED	WET SOLIDS,CEMENT,FLY ASH BAG FILLERS,ESP HOPPERS	01		SS316	R	T910	H	300 450 600		- - -	80	ATM
94	COATSAFHIGH TEMPERATURE ALUMINA INSULATED	FLY ASH CLINCKER	02		SS316	R	T910	H	300 450 600		- - -	300	ATM
25	GI WIRE ROPE ELECTRODE	DRY SOLIDS	01		SS316	I	T910	V	1000	6000	-	80	ATM

**Notes:**

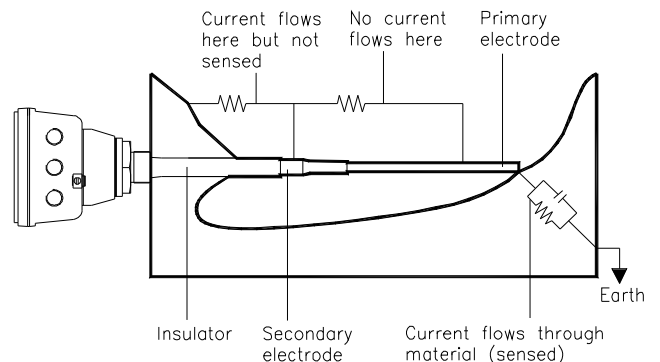
- Separate ordering code for controller and Electrode is required for Remote mounting (Refer page 4)
- V/H Indicates mounting orientation : V=Vertical, H= Horizontal.
- I/R indicates construction :I= Integrated,R= Remote i.e 2 part system separate switch and probe unit.
- Hysteresis varies as per process material sensed.
- 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.
- Cable between Probe head and Controller is 4 core shielded Tinned copper multistrended 3 X 0.5 sq.mm. 100 Mtr.( Max.).
- Slip on flanges with suitable threaded hole in required material e.g. CS/SS316/SS304,available optionally.
- Size of Process connection as per "Electrode Selection Guide".

## DIMENSIONAL DETAILS :



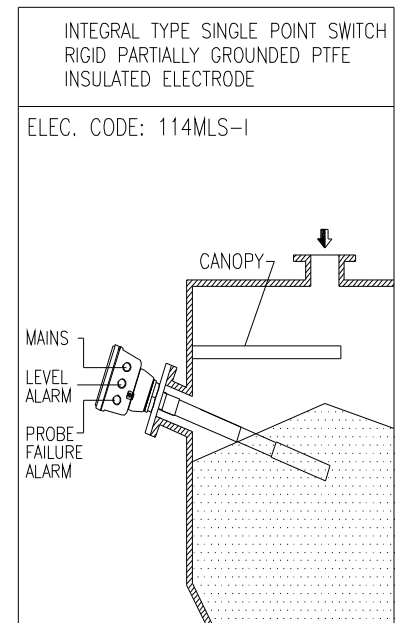
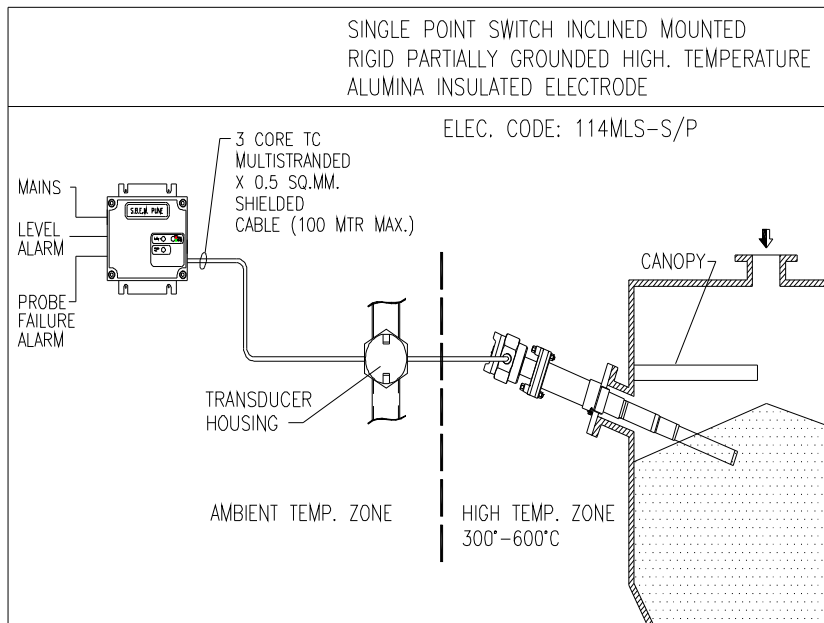
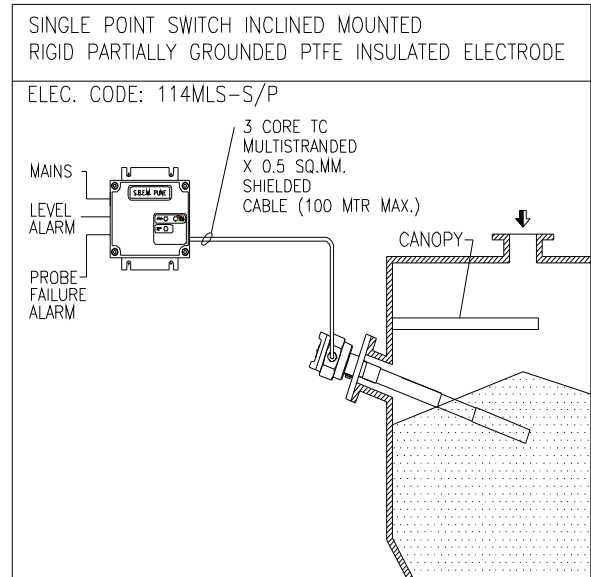
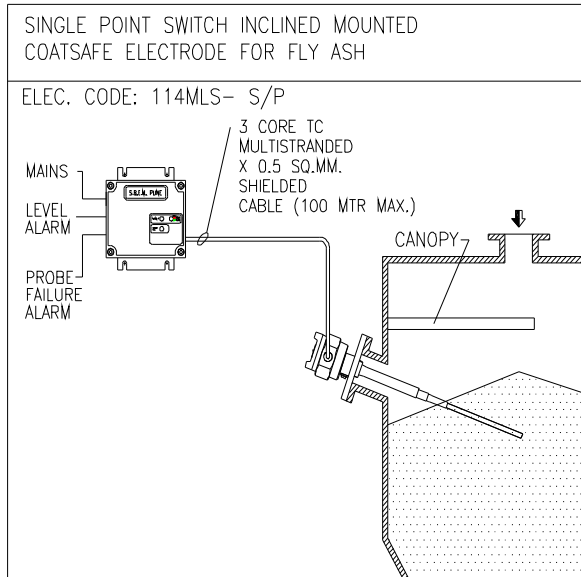
### COAT-SAFE PRINCIPLE :

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 instrument measures the current that flows from primary electrode to ground. This means that buildup 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 :



\*\*\* Continuous developments may necessitate changes without notice.

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