



**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 Tempera- ture 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

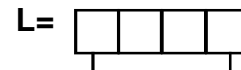
Process connection



Electrode



Electrode length



L=XXXX
 Electrode length

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.

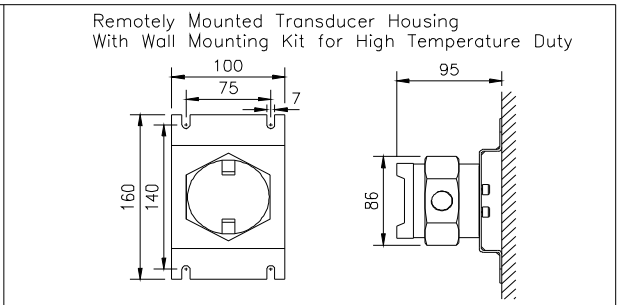
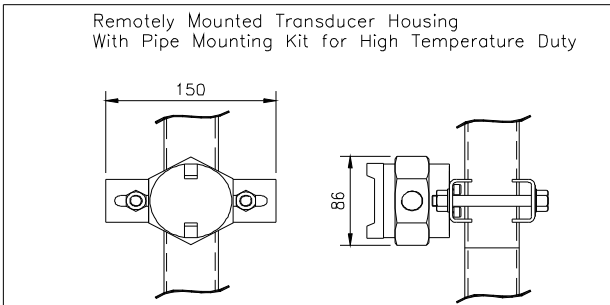
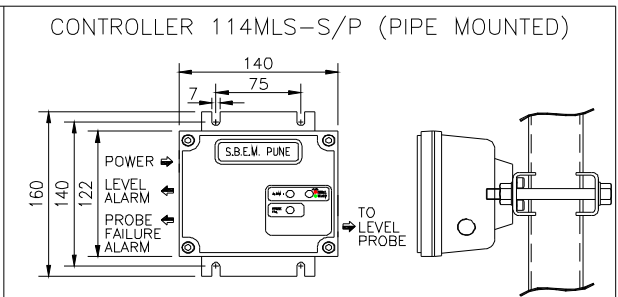
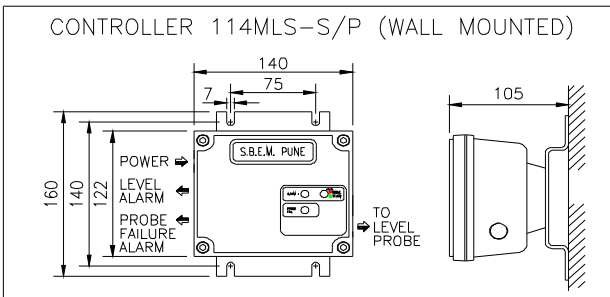
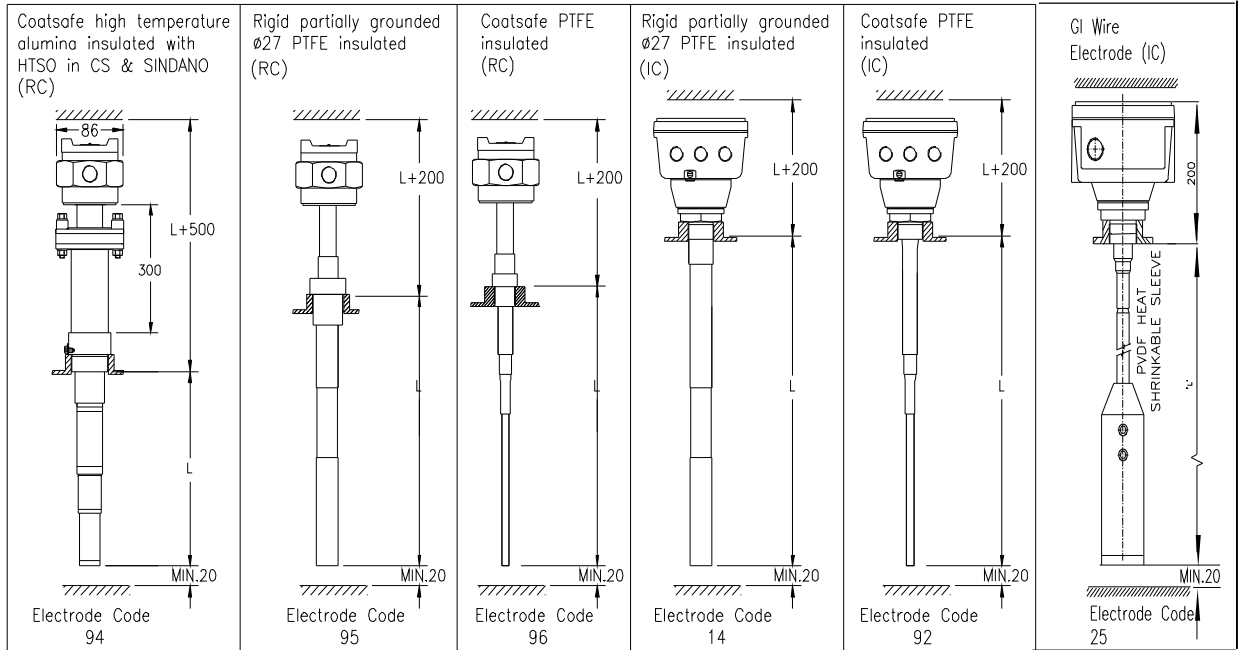
ELECTRODE SELECTION GUIDE :

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:

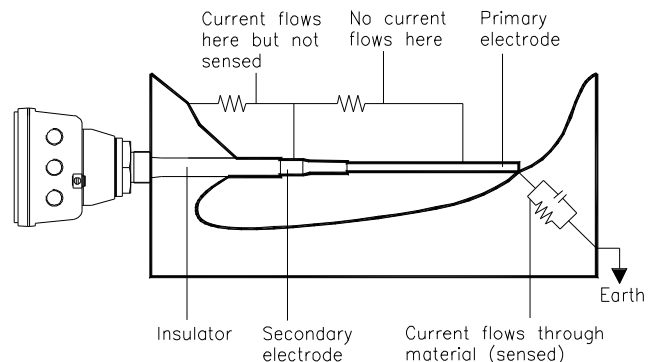
- Separate ordering code for controller and Electrode is required for Remote mounting (Refer page 4)
- V/H Indicates mounting orientation : V=Vertical, H= Horizontal.
- I/R indicates construction :I= Integrated,R= Remote i.e 2 part system separate switch and probe unit.
- Hysteresis varies as per process 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 :



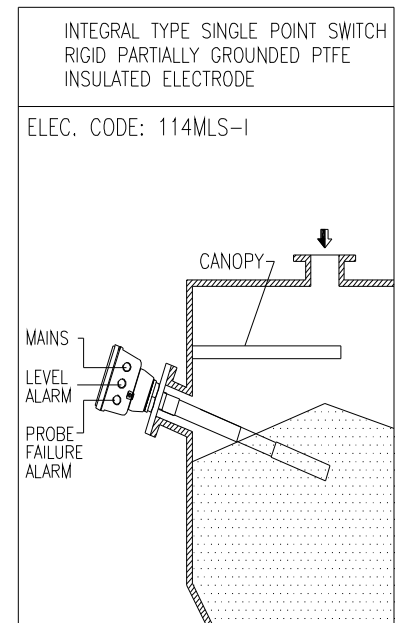
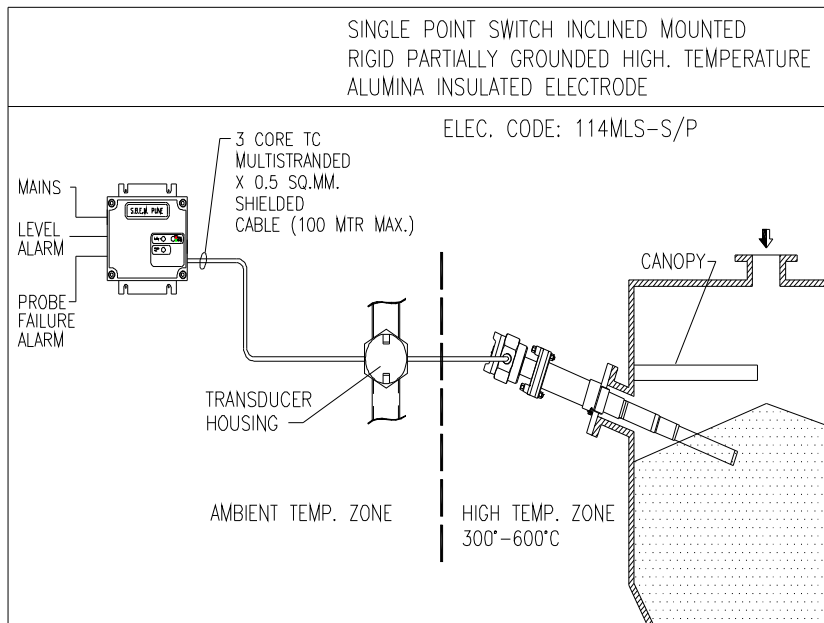
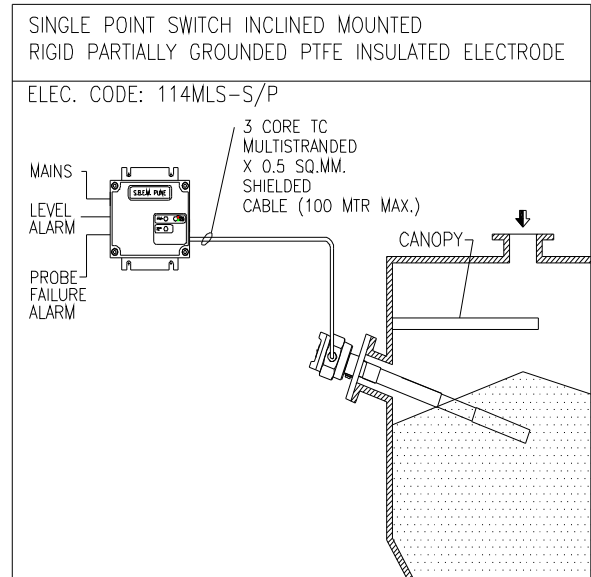
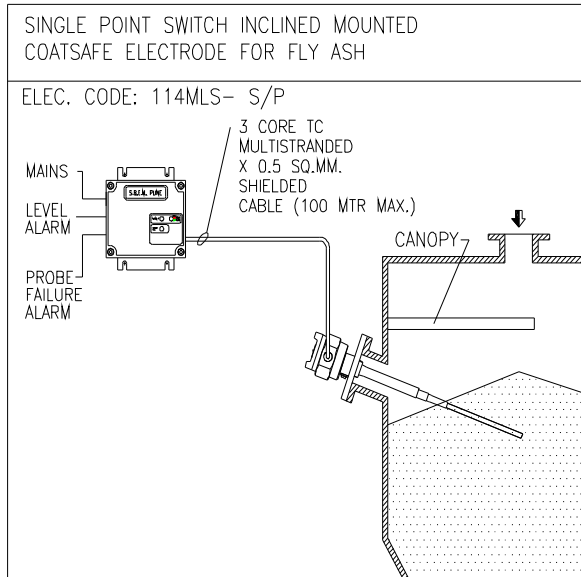
COAT-SAFE PRINCIPLE :

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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