



LEVEL SWITCH
FOUR POINT LEVEL METER
LEVEL TRANSMITTER

5711/12
5730
5750

- 5711/5712 Single / Dual Point
- Switch with Relay Output
- Wide Differential Option
- Weatherproof or Flameproof
- 5730 Microcontroller based Four Point Level Monitor
- Analog & Digital output
- Relay outputs for Alarm or sequence control
- 5750 Level Transmitter
- 4 – 20 mA or 1–5V DC
- Weatherproof or Flameproof



5750 — LEVEL TRANSMITTER



5730 — LEVEL METER (MICRO CONTROLLER VERSION)

SWITZER series 5700 has been developed for monitoring and control of process level by using the principle of R.F.CAPACITANCE.

These instruments are suitable to measure liquids, slurries and bulk solid applications. Compact size and ease of installation combined with accurate sensing of level in both hazardous and non-hazardous locations render these level switches the most versatile.

These are simple in design, rugged in construction. Different models are available for Single / Multi point level controls. The sensing probes are available for both conductive and non-conductive processes. A variety of configuration and mounting styles are available to meet wide range of process requirements.

Model 5711 has a single setpoint with 1 DPDT relay output with fixed narrow deadband and adjustable time delay is provided.

Model 5712 has dual setpoints with 1 DPDT relay output for each setpoint, having fixed narrow deadband. Alternatively the two setpoints can be interlocked to provide 1 DPDT relay output with wide deadband.

Model 5730 Flexicap level meter is a micro-controller based level instrument having variety of features, such as 4 Alarm Relays, Current & Voltage outputs, adjustable Time Delay and RS-232C Serial Port communication.

Model 5750 is a level transmitter providing 4 to 20 mA current output in two wire configuration or 1 to 5V DC output in 4 wire version.

LEVEL SWITCH MODELS 5711 SINGLE & 5712 DUAL POINT

5711 and 5712 level switches provide alarm contacts at preset values.

5711 is a single point level switch and can be used to monitor the level at any point in an equipment as a Point Level Switch.

5712 is a Dual point level switch which can be used for two independent set points with fixed narrow dead band for alarm, control and start / stop functions.

The two set points can be interlocked to provide wide dead band control, where a pump can be started and stopped at the preset values without the need for external interlocking relays. Typically useful for filling and emptying Fuel Day Tanks, water tanks etc.

Integral or Remote versions are available to meet the application requirement and weatherproof or flameproof enclosures are available for use in hazardous and non hazardous areas.

TECHNICAL SPECIFICATIONS

Input (Probe Capacitance)	0 to 5000 pF	Enclosure	
Min. Span	3 pF	Integral Version	Weatherproof / Flameproof
Power supply	90 to 250 V AC / 100 to 300 V DC or 18 to 32 V DC	Remote Version	Probe Head – weatherproof or flameproof
Output	5711 – 1 DPDT relay 5712 – 1 DPDT relay for each setpoint		Control unit – DIN rail mount or Weatherproof / flameproof
Contact rating	5 A, 250 V AC / 28 V DC	Probe Type	Rigid Rod – single or dual Flexible Rope – single or dual Guarded Probe
Time delay	0 to 20 sec. Adjustable	Probe Insulation	Teflon FEP (Fluorinated Ethylene Propylene)
Relay Mode	Normal or failsafe, jumper selectable	Probe length	Rigid – 250 mm to 3 meters Flexible Rope – 4 to 10 meters Guarded – 350 mm. std. For optional lengths consult factory
Dead band	5711 – Fixed Narrow (3pF) 5712 – For 2 independent relay outputs Fixed Narrow (3pF) or with both relays interlocked 1 wide adjustable dead band (50 to 4000 pF)	Process Connection	Screwed or flanged
Alarm mode	Low or High, jumper selectable	Cable Entry	
Status Indicating LED	Power ON – RED Relay ON – YELLOW	Integral type	1/2" NPTF – 2 Nos.
Mounting	5711 – Vertical or horizontal 5712 – Vertical only	Remote type	
Electronics Location	1) Integral with probe 2) Remote – Pulse amplifier on Probe Head – Control Electronics in Remote Housing	Probe Head	1/2" NPTF – 1 No.
		Remote Housing	1/2" NPTF – 2 Nos.
		Process conditions	Atmospheric pressure at 200°C; 65 bar at 30°C
		Ambient conditions	0 to 50°C; Relative Humidity 95% Non-condensing

LEVEL TRANSMITTER MODEL 5750 (Integral Mounting only)

Model 5750 C, 2-wire version operating on 9 to 32V DC provides 4 to 20 mA output with load capability of 700 Ohms at 24V DC. Model 5750 V, 4-wire version operates on 18 to 32V DC supply and provides 1 to 5V DC output.

Combined with different types of probes the transmitter can be used with most of the liquids and free flowing granular solids.

TECHNICAL SPECIFICATIONS

Input (Probe Capacitance)	0 to 4000 pF	Enclosure	weatherproof / flameproof
Min. Span	50 pF	Probe type	Rigid Rod – single or dual Flexible Rope – single or dual
Power supply	9 to 32 V DC for Current output 18 to 32V DC for Voltage output	Probe Insulation	Teflon FEP (Fluorinated Ethylene Propylene)
Output	4 to 20 mA (2-wire) or 1 to 5 V DC (4-wire)	Probe length	Rigid – 300 mm to 3 meters Flexible Rope – 4 to 10 meters
Accuracy	± 1% FS, BFSL	Process Connection	Screwed or flanged
Output load	700 Ohms at 24 V DC (Current output)	Cable entry	1/2" NPT F – 1 No.
Status Indicating	Loop Current ON – RED LED	Process conditions	Atmospheric pressure at 200°C; 65 bar at 30°C
Mounting	Vertical	Ambient conditions	0 to 50°C; Relative Humidity 95% Non-condensing
Electronics Location	Integral with probe		

FLEXICAP MICRO CONTROLLER BASED FOUR POINT LEVEL METER MODEL 5730

Switzer Flexicap is a Microcontroller based versatile level instrument. Using different types of sensing probes it can be used for monitoring level of liquids, slurries and bulk solids.

The instrument uses a Remote mounted control unit, which houses the display, keypad for programming and relays.

A unique calibration feature allows the unit to be fully calibrated with only one level change, 5% of span or greater.

A keyboard with 4 tactile keys and an alphanumeric backlit LCD display provide for easy calibration and allow user to modify alarm settings, relay operation, relay sequence and time delay settings.

Process value is displayed in 3 digits along with the unit of measurement. Choice of 6 units provide total freedom for the user.

4 to 20 mA and 1 to 5 V DC outputs are available as default. In addition 4 independently adjustable set points, each with a

relay output with dead band (differential) adjustment are available. The relays can be operated individually or can be grouped to operate in 4 pre-programmed sequences shown in the table.

Sequence	Relay 1	Relay 2	Relay 3	Relay 4
A	Interlocked		Independent	
B	Interlocked			Independent
C	Interlocked			
D	Interlocked		Interlocked	
No Sequencing	Independent			

A RS-232C serial port allows programming the instrument through a PC and to save the programmed data in the PC for future use.

TECHNICAL SPECIFICATIONS

Input (Probe Capacitance)	0 to 10000 pF	Mounting	Vertical
Min. Span	50 pF	Electronics Location	Remote – Pulse amplifier on Probe Head – Control Electronics in Remote Housing
Power supply	90 to 250 V AC / 100 to 300 V DC or 20 to 30 V DC		Interconnection between Probe & Remote unit with 2 Core shielded cable (provided on request) with a maximum length 1500 meters.
Data input	Through 4 Tactile Keys MODE, UP, DOWN & ENTER	Calibration	Full calibration with only 5% change in level.
Display	10.7 mm character single row Alphanumeric backlit LCD	Enclosure	
Programme data	8 characters	Probe Head	Weatherproof or Flameproof
Process Value	999 counts max., Displayed in 3 digits	Control unit	Weatherproof to IP:65
Units	%, mtr, inch, cm, mm & feet	Probe type	Rigid Rod – single or dual Flexible Rope – single or dual
Output		Probe Insulation	Teflon FEP (Fluorinated Ethylene Propylene)
Relay output	4, 1 SPDT Relay for each set point,	Probe length	Rigid – 300 mm to 3 meters Flexible Rope – 4 to 10 meters
Relay Sequence	5, programmable sequences	Process Connection	Screwed or flanged
Contact Rating	5 A, 250 V AC / 28 V DC	Cable Entry	
Analogue output	4 to 20 mA & 1 to 5 V DC	Probe Head	1/2" NPTF – 1 No.
Digital output	RS - 232 C Serial Port For PC interface	Remote Housing	PG 9 - 1 No. PG 11 – 2 Nos. PG 13.5 – 1 No.
Time delay	0 to 250 sec. Programmable	Process conditions	Atmospheric pressure at 200°C; 65 bar at 30°C
Relay Mode	Normal or failsafe, Programmable	Ambient conditions	0 to 50°C; Relative Humidity 95% Non condensing
Dead band	0 to 999 units Fully Programmable		
Alarm mode	Low or High, Programmable		
Set Point range	0 to 999 counts for each set point		
Status Indicating LED	Power ON – RED Relay ON – YELLOW for each set point		

ORDERING MATRIX

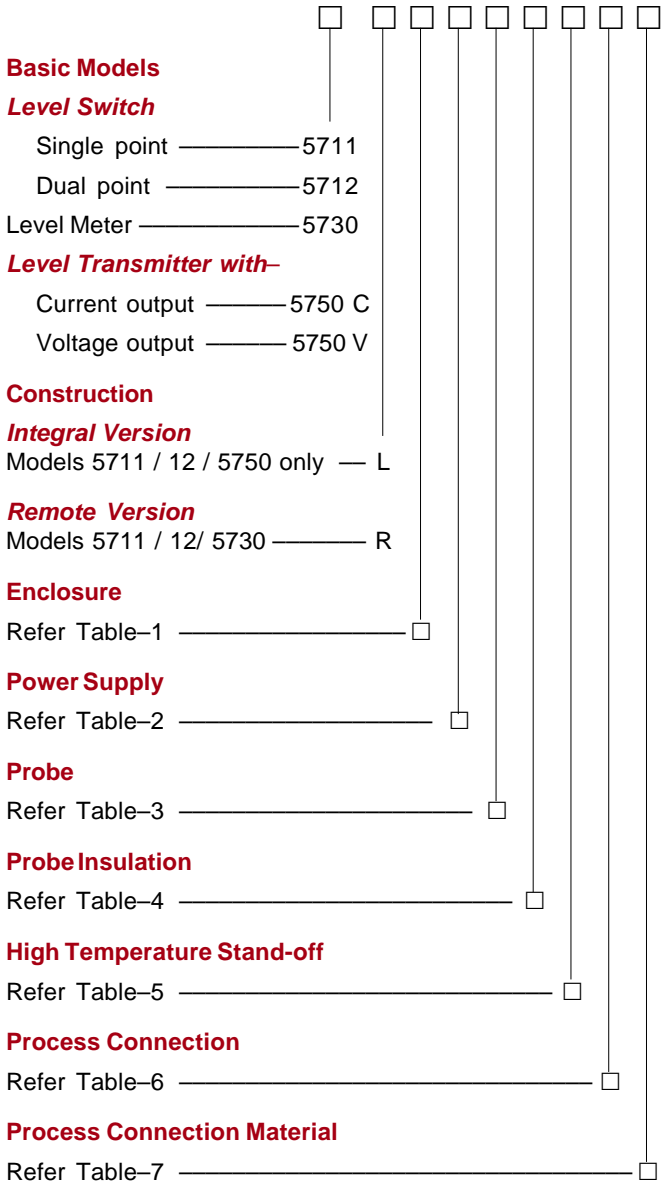


Table-1 : ENCLOSURE

Models	Enclosure	Code	
Integral Electronics			
5711 / 12 / 50	Weatherproof (a)	W	
5711 / 12 / 50	Flameproof (b)	E	
Remote Electronics			
Models	Probe Head	Control Electronics	Code
5711	Weatherproof (a)	DIN Rail Mount (c) (Indoor use)	D
	Weatherproof (a)	Weatherproof (a)	W
	Flameproof (b)	Flameproof (b)	E
	Flameproof (b)	DIN Rail Mount (c) (Indoor use)	F
5712	Weatherproof (a)	Weatherproof (a)	W
	Flameproof (b)	Flameproof (b)	E
	Flameproof (b)	Weatherproof (a)	C
5730	Weatherproof (a)	Weatherproof (d)	W
	Flameproof (b)		P

Enclosure Material

- (a) Style GK Aluminium pressure die cast, weatherproof to IP:66
- (b) Style GK Aluminium pressure die cast, weatherproof to IP:66 and Flameproof to Gr.IIA, IIB & IIC of IS2148 : 2004
- (c) ABS Plastic, for indoor use
- (d) Weatherproof to IP:65 Polycarbonate + Polystyrene

Table-2 : POWER SUPPLY

Models	Voltage Range	Code
Universal Supply		
5711, 5712 & 5730	90 to 250V AC or 100 to 300V DC	A
DC Supply		
5711, 5712 & 5750V	18 to 32V DC	D
5730	20 to 30V DC	
5750C	9 to 32V DC	

Table-3 : PROBE

Probe Type	Probe dia	Code	Application	
			Medium	Vessel / Tank
Single, Rigid Rod	1/4"	1	Conductive	Conductive
	1/2"	2	Non Conductive	Conductive
Dual, Rigid Rod	2 x 1/4"	3	Conductive & Non Conductive	Non Conductive
Stillwell	1/4" Rod with 19 mm OD Tube	4	Both Conductive & Non Conductive, Non corrosive	Both Conductive & Non Conductive
	22 mm dia probe with 33 mm OD Tube	5	Non Conductive (Oil, Motor Spirit, etc.)	Both Conductive & Non Conductive
Guarded Probe – Std.	1/2" dia & Length 350 mm (Refer Note 2)	6	Which can coat / stick to the probe & dry Powders / Solids	Conductive
Guarded Probe – Non Std.	1/2" dia Customer to specify length (Refer Note 2)	7		
Single Flexible Rope + counter weight	1/4"	8	Conductive & Non Conductive	Conductive
Dual Flexible Rope + Counter weight	2 x 1/4"	9	Conductive & Non Conductive	Non Conductive

Table-4 : PROBE INSULATION

Medium	Required / Not Required	Code
Conductive	Required	R
Non-Conductive	Not Required	N

Table-5 : HIGH TEMPERATURE STAND-OFF

Process Temperature	Stand-off	Code
Below 80 Deg C	Not Required	N
Above 80 Deg C	Required	H

Table-7 : PROCESS CONNECTION MATERIAL

Material	Connection Type	Code
CS	Flanged only	C
CS with Teflon Lining	Flanged only	L
PVC	Screwed & Flanged	P
304 SS	Screwed & Flanged	F
316 SS	Screwed & Flanged	S
Others	On request	X

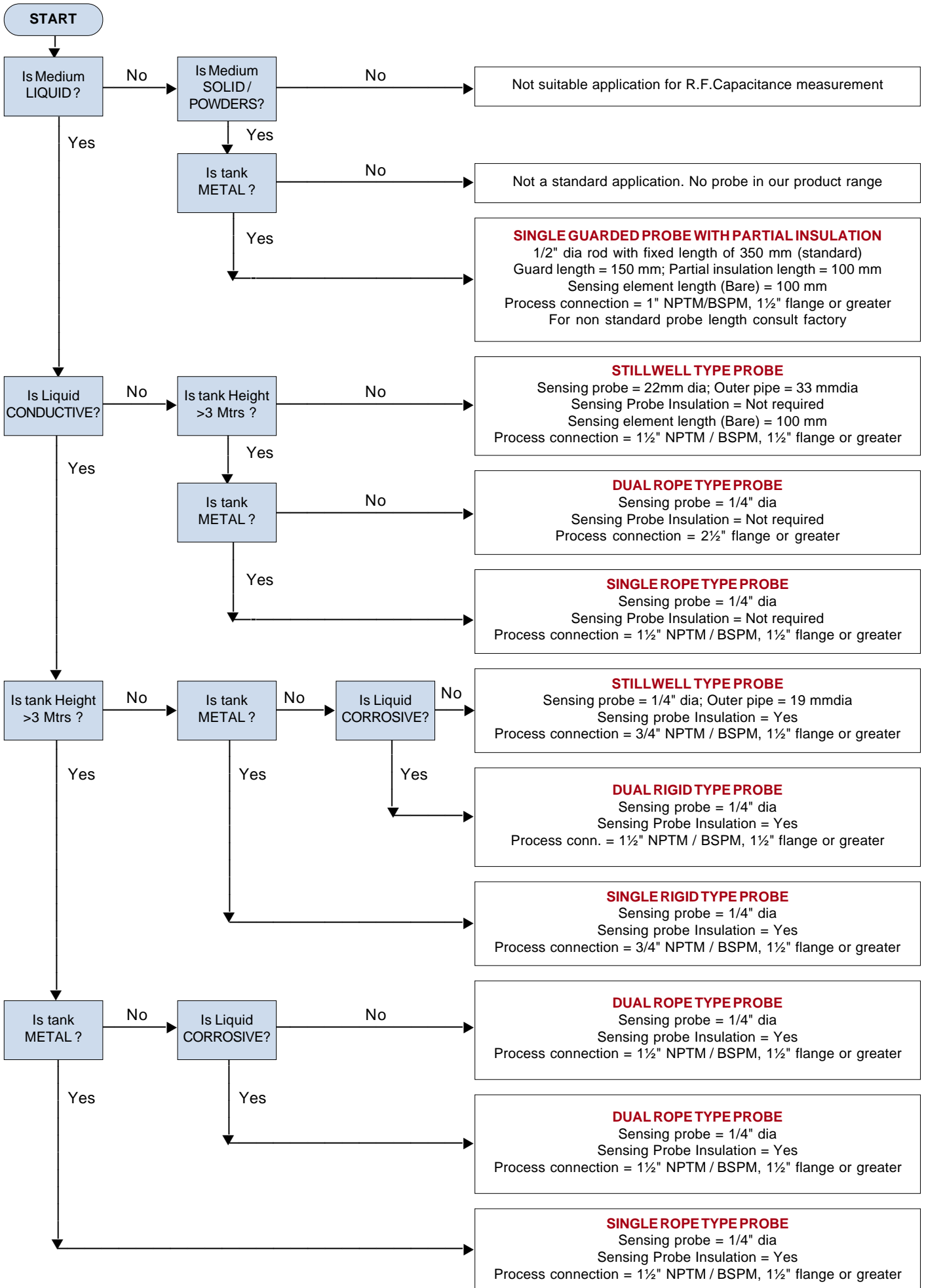
Table-6 : PROCESS CONNECTION

Screwed Type							
Size	Single Rigid Rod	Dual Rigid Rod	Stillwell		Guarded	Flexible Rope	Code
			1/4" +19 mm OD Tube	22 + 33 mm OD Tube			
3/4" NPT M	✓	×	✓	×	×	×	A
3/4" BSP M	✓	×	✓	×	×	×	B
1" NPT M	✓	×	✓	×	✓	×	C
1" BSP M	✓	×	✓	×	✓	×	D
1½" NPT M	✓	✓	✓	✓	✓	✓	E
1½" BSP M	✓	✓	✓	✓	✓	✓	F
Flanged Type (Std. ANSI 150 # RF)							
1½"	Available with all probes						G
2"							H
2½"							K
3"							L
4"							M
Others							N

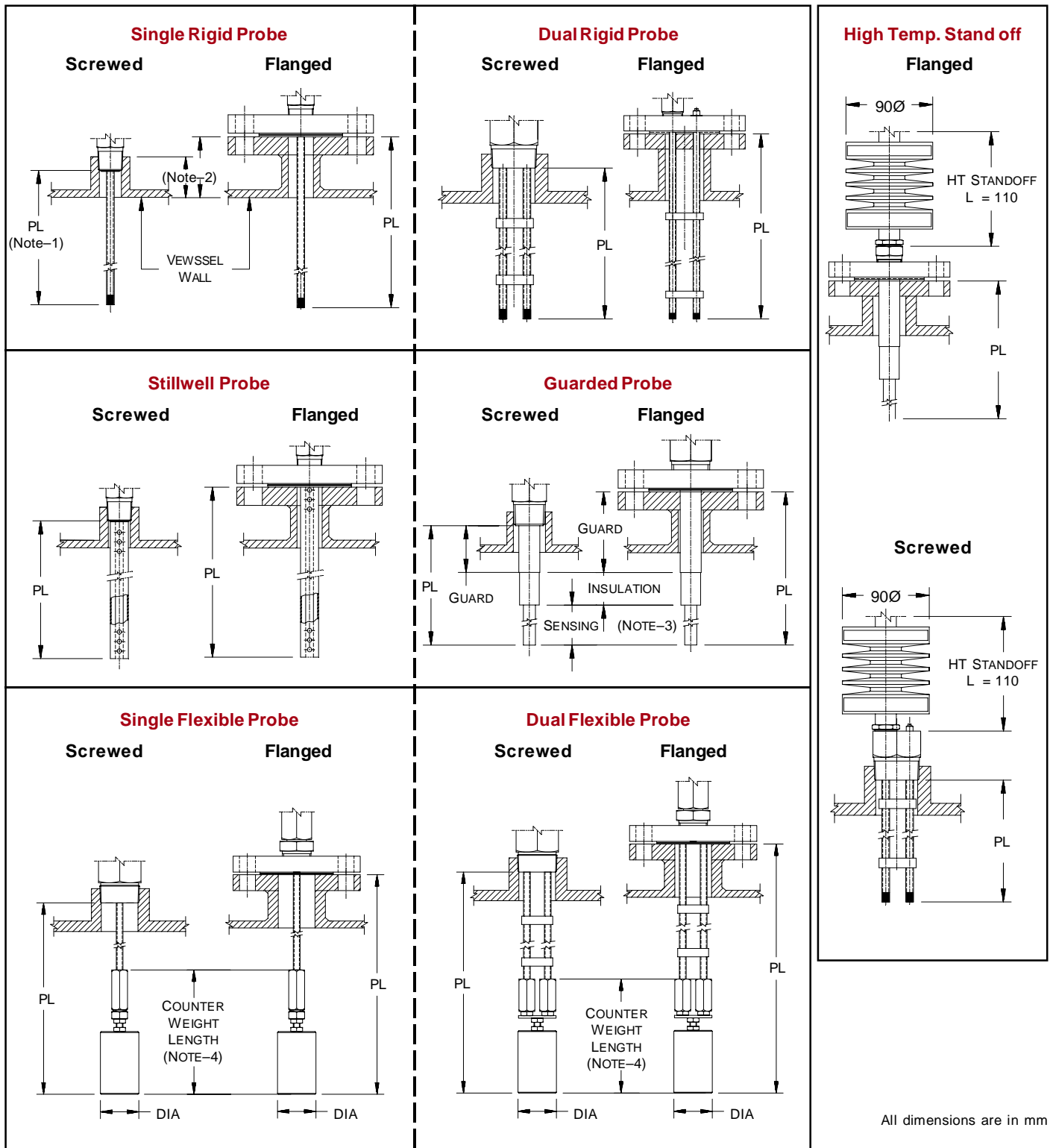
NOTES:

- Probe Material : 316 SS for Non insulated probes
304 SS for insulated probes
- Probe Length - Standard : **Rigid Type** – Upto 3 meters
Flexible Rope type – Upto 10 meters
Longer lengths on request
Guarded Probe – Applicable for 5711 only
Standard : Length = 350 mm
: Guard (L1) Insulation (L2) Sensing (L3)
: L1=150 mm L2=100 mm L3=100 mm
Non-standard : Customer to specify L1, L2 & L3.
 - Minimum : **Switch application** 5711, Single Set Point = 100mm
5712 Two Set points = 200 mm
5730 Four Set points = 300 mm
Transmitter application 5750 = 300 mm
 - Required Probe Length : To be specified by customer. Required probe length should include height of spouts / nozzles / flange extensions. Refer to Probe Type drawings in Page-7.
- Probe Insulation : Not applicable for “22 dia probe x 33 OD tube” type Stillwell probes.
- Counter weight (for Flexible Rope probes) : *For process connection codes ‘K’ to ‘N’*
55 mm Dia x 100 mm long (Inactive length 200 mm)
For process connection codes ‘E’ to ‘H’
35 mm Dia x 200 mm long (Inactive length is 300 mm)
Material : 316SS or Teflon lined Carbon Steel
- High Temperature Stand-off : 110 mm Aluminium fins on 304 SS pipe integrated with enclosure.
- Remote electronics location : Max. Distance of separation between Pulse amplifier & remote control unit is 1500 meters
- Switching / Relay Options : In Model 5711 & 5712 Alarm type, Relay operation mode, interlocking of setpoints (model 5712 only) and such features are jumper selectable.
In model 5730 all these features are programmable. Refer Instruction Manuals for details.
- Consult "Probe Selection Guideline Flow Chart" to select the appropriate probe
- Process connection material of PVC & CS with Teflon lining (Code ‘P’ & ‘L’ of Table-7) can not be provided for Stillwell type probe (Code ‘4’ & ‘5’ of Table-3) and Single and Dual Flexible Rope probe (Code ‘8’ & ‘9’ of Table-3).

LEVEL PROBE SELECTION GUIDELINE FLOW CHART



PROBE TYPES



Notes :

1. 'PL' represents the complete probe length, which will be considered for manufacturing.
2. Customer to consider the necessary length additions, due to the vessel spouts/spacers/flange over the vessel surface and to be included into probe length.
3. Guarded probe length = Guard+ Insulation+Sensing lengths. Refer to page-5.
4. Counterweight dimension : probe length (PL) is inclusive of counterweight length for flexible rope type probes.
 - (i) 35mmØ x 200mm long for process connection code 'E' to 'H'.
 - (ii) 55mmØ x 100mm long for process connection code 'K' to 'N'.

