

Level switch

Four point level meter

Model 5711, 5712, 5730

WIKA data sheet PV 70.01/2/5

Applications

- Conductive liquids – water, acid, alkalis
- Non-conductive liquids – oil, lubricants
- Solids – free flowing fine powder
- Tank fill and drain functions
- Pump control

Special features

- Wide differential option
- Weatherproof or flameproof
- Analog and digital output
- Relay outputs for alarm sequence control



**Fig.: Left: 5711, level switch with rail mounted enclosure
Right: 5730, level meter (four switch points)**

Description

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.

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.

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 – 3 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

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

ORDERING MATRIX

Basic Models

Level switch Single point	5711
Level switch Dual point	5712
Level Meter	5730

Construction

Integral version for models	L
Remote version for models	R

Enclosure

Aluminium pressure die cast, weatherproof and flameproof enclosure	GK
Probe head GN, control electronic weatherproof enclosure	R0
Probe head GR, control electronic weatherproof enclosure	R1
Probe head GN, control electronic weatherproof DIN enclosure	D0
Probe head GN, control electronic weatherproof GK enclosure	W0
Probe head GR, control electronic weatherproof DIN enclosure	F0
Probe head GR, control electronic flameproof GK enclosure	E0

Power Supply

Universal supply

100 to 240V AC	L
100 to 300V DC	Y

DC Supply

18 to 36V DC	P
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Probe

1/4" Single, Rigid rod	1
1/2" Single, Rigid rod	2
2 × 1/4" Dual, Rigid rod	3
1/4" Rod with 19 mm OD tube, Stillwell	4
22 mm dia probe with 33 mm OD tube, Stillwell	5
1/2" dia and length 350 mm standard, Guarded probe (for model 5711 only)	6
1/2" dia and length customer scope optional, Guarded probe (for model 5711 only)	7
1/4" Single Flexible Robe + counter weight (only with flanged connection)	8
2 × 1/4" Dual Flexible Robe + counter weight (only with flanged connection)	9

Probe Insulation

Not required	N
Required	R

Process Temperature

Below 80°C process temperature	N
Above 80°C process temperature	H

ORDERING MATRIX Contd...

Process Connection

Screwed Type

Single / Stillwell - 1/4"

3/4" NPTM _____ P8

3/4" BSPM _____ P13

Single / Stillwell - 1/4" / Guarded

1" NPTM _____ P12

1" BSPM _____ P11

Single / Stillwell - 1/4", 22 mm / Dual / Guarded / Flexible rope

1½" NPTM _____ P10

1½" BSPM _____ P9

Single / Stillwell - 1/4"

3/4" NPTM _____ P8

3/4" BSPM _____ P13

Flange Type

1½" 150 RF _____ F5

2" 150 RF _____ F7

2½" 150 RF _____ F9

3" 150 RF _____ FB

4" 150 RF _____ F13

Others _____

Process Connection Material

Screwed Type

316 SS _____ 2

Flange Type

Mild steel _____ C

304 SS _____ 4

316 SS _____ 2

Options

Flange with Teflon lining

Counter weight with Teflon lining

PVC process connection

NOTES:

1. Probe length : Starts from 100 to 2000 in 50 mm steps,
above 2000 mm 500 mm steps upto 10000 mm
2. Probe Material : 316 SS for Non insulated probes
304 SS for insulated probes
3. a) 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.

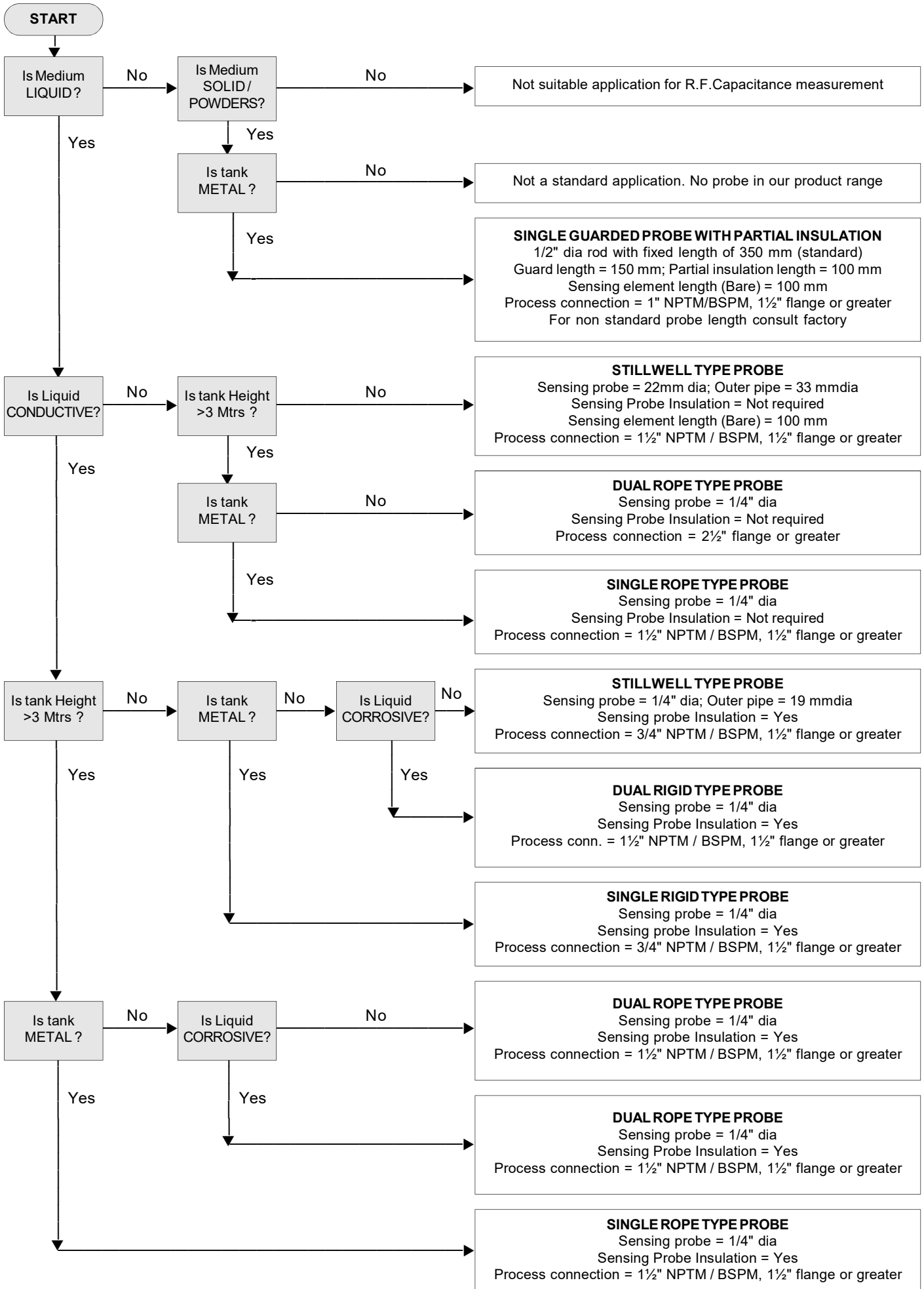
b) Minimum : **Switch application** 5711, Single Set Point = 100mm
5712 Two Set points = 200 mm
5730 Four Set points = 300 mm

c) 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-8.
4. Probe Insulation : Not applicable for “22 dia probe x 33 OD tube” type Stillwell probes.
5. Counter weight : *For process connection codes ‘F9’ to ‘□□’*
(for Flexible Rope probes) 55 mm Dia x 100 mm long (Inactive length 200 mm)

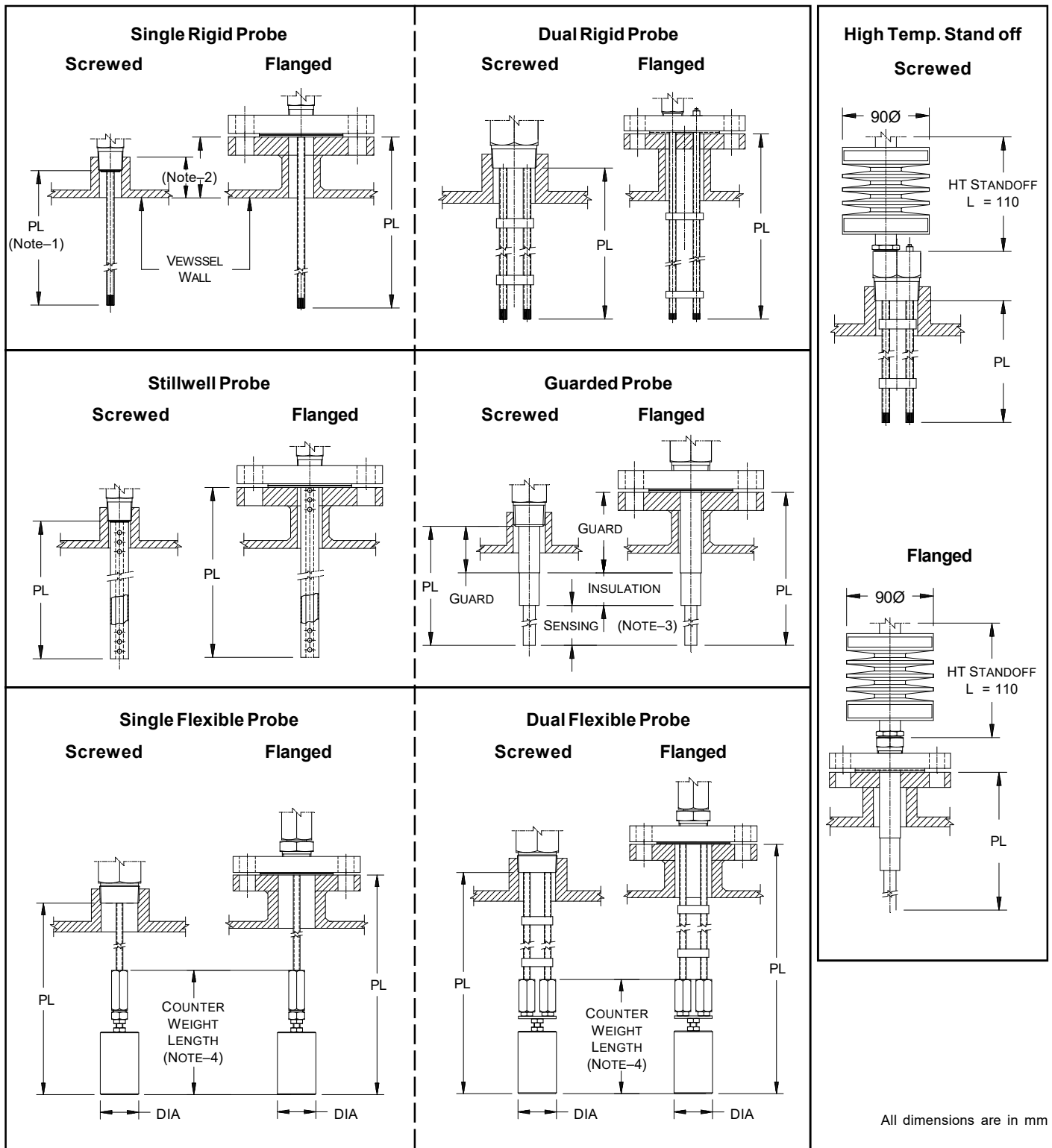
For process connection codes ‘P10’ to ‘F7’
35 mm Dia x 200 mm long (Inactive length is 300 mm)
Material : 316SS or Teflon lined Carbon Steel
6. High Temperature Stand-off : 110 mm Aluminium fins on 304 SS pipe integrated with enclosure.
7. Remote electronics location : Max. Distance of separation between Pulse amplifier & remote control unit is 1500 meters
8. 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.
9. Consult "Probe Selection Guideline Flow Chart" to select the appropriate probe
10. Process connection material of PVC & CS with Teflon lining can not be provided for Stillwell type probe (Probe Code ‘4’ &
‘5’ of ordering matrix) and Single and Dual Flexible Rope probe (Probe Code ‘8’ & ‘9’ of Ordering matrix).

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-6.
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 'F10' to 'F7'.
 - (ii) 55mmØ x 100mm long for process connection code 'F9' to '□□'.

MOUNTING DIMENSIONS

Integral Configuration in GK Housing Models 5711 / 5712

Remote Configuration

1) Models 5711 / 5712
Probe Head in GN & GK Housing

2a) Model 5711 : Remote Control Unit in DIN Housing (Indoor Mounting)

Surface Mounting

(Rail width 35 mm) in Customer's Scope

2b) Models 5711 / 12 : Remote Control Unit in GK Housing

Pipe Mounting

* Alternate Horizontal Position of 2"Ø Pipe (Fix 'U' Bolt Vertically)
2" Pipe by Customer

* For Surface Mounting use 2 × 3/8" × 40 long Coach Screw ('U' Clamp not required)

3/8" BSW 'U' Bolt – 2 Nos. Fixed at a pitch of 71.5° (10.5 Fixing Holes – 4 Nos.)

Cable Entry 1/2" NPTF

2c) Model 5730 : Remote Control Unit in Polystyrene Housing with Polycarbonate lid

M5 × 25 Screw – 1 No.

M5 × 25 Screw 2 Nos.

are in mm

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