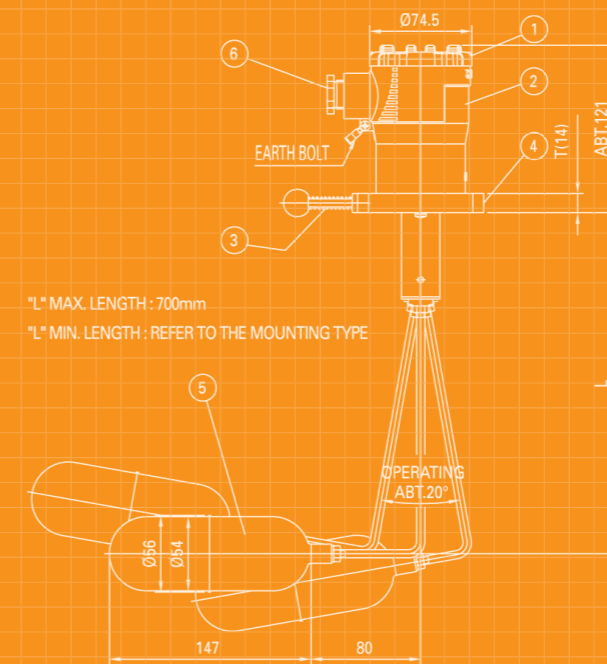


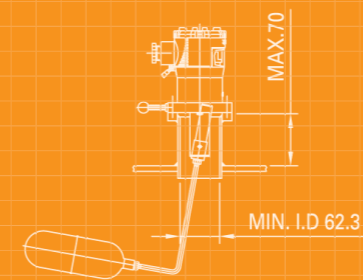
Level Measurement Systems & Instrumentations

Level Switches

- Micro Switch Type Float Switch
- Displacement Type Level Switch
- Float Operated Type Level Switch
- Reed Switch Type Float Level Switch
- Pneumatic Type Level Switch
- Float Operated Type Level Switch
- Quick Float Type Level Switch
- Capacitance Type Oil Detector
- Vibration Type Level Switch For Liquid And Solid
- Paddle Type Level Switch For Solid



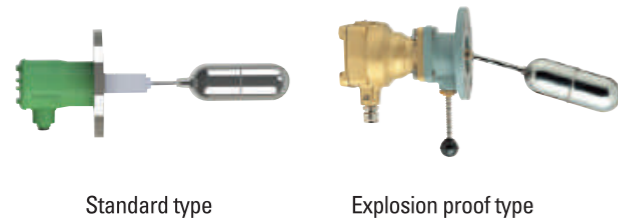
SLIP-ON FLANGE MOUNTING



Level Switches

Micro Switch Type Float Switch

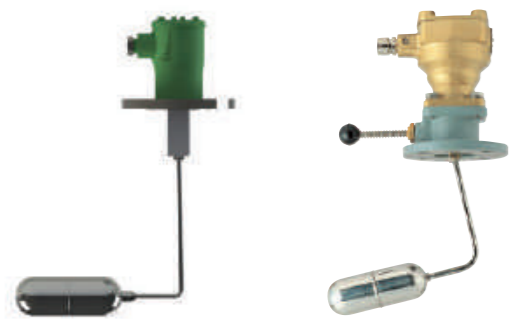
Horizontal type : FMS-H Series



Standard type

Explosion proof type

Vertical type : FMS-V Series



Standard type

Explosion proof type

Operating principle

Magnetic float type level switches detect the liquid level and send out contact signals of micro switch by ON-OFF action. A magnetic action between two magnet fully separated by each partition wall is utilized. One is built in another end of the float and the other is attached on the switch unit in the housing.

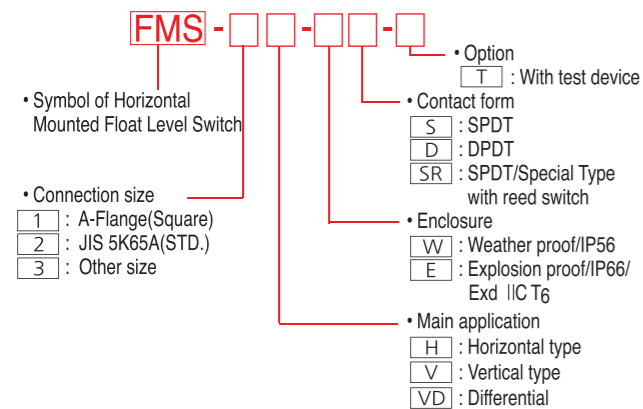
Features

- Fully sealed
- The switch unit is completely separated from the parts inserted within the tank by non-magnetic diaphragm
- Reliable
- Designed compact, it has a large contact rating of 250VAC, 5Amp. and is subject to no troubles.
- Easy maintenance
- Simply designed switch unit for easy maintenance.
- Durable float
- Argon Gas welded stainless steel floats are durable for pressure and temperature.

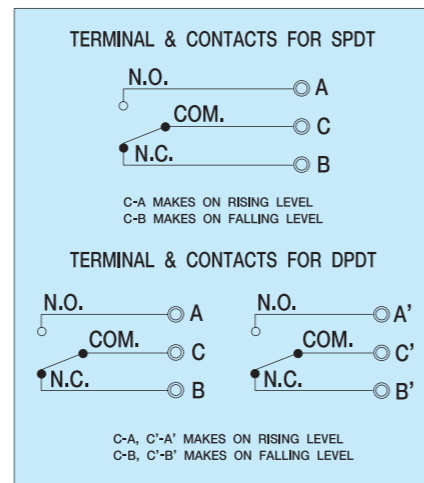
Application

Magnetic float type level switches are widely used for Heavy fuel oil tanks, Settling tanks, Sludge tanks, Sewage tanks, Fresh water tanks, Lub. oil tanks, D.O tanks and others.

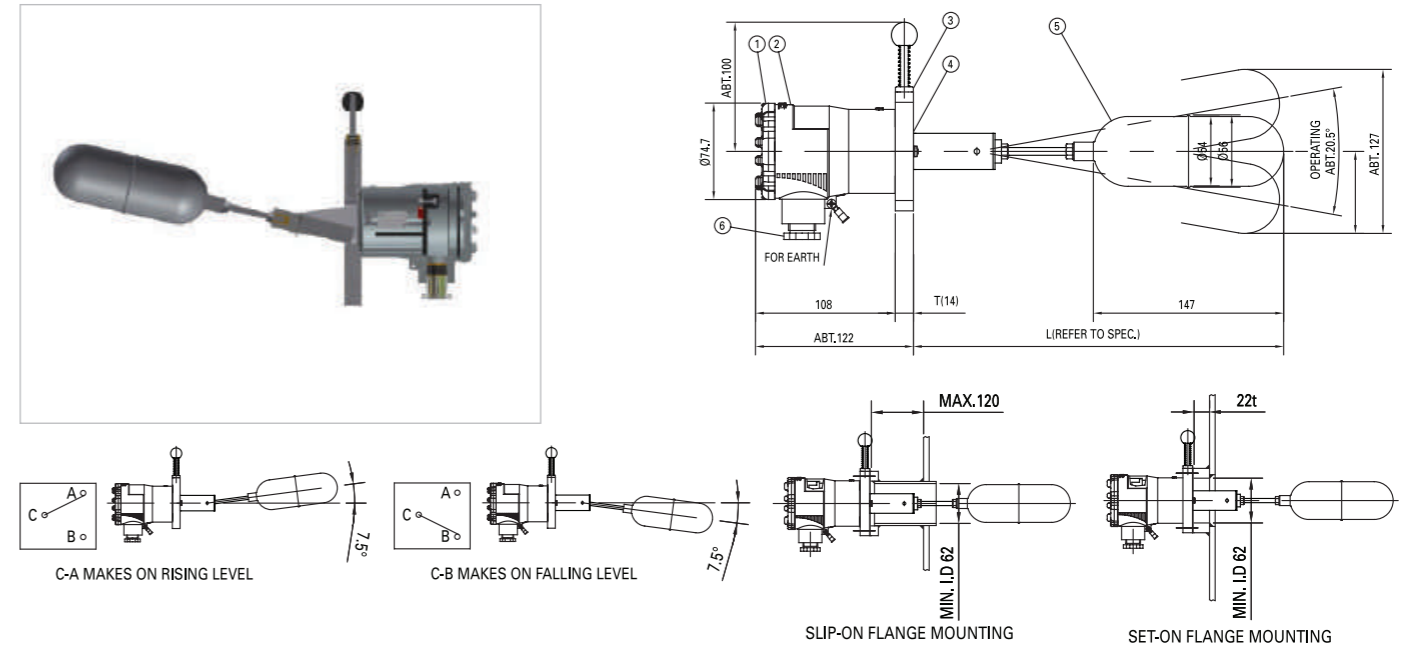
Model number code system



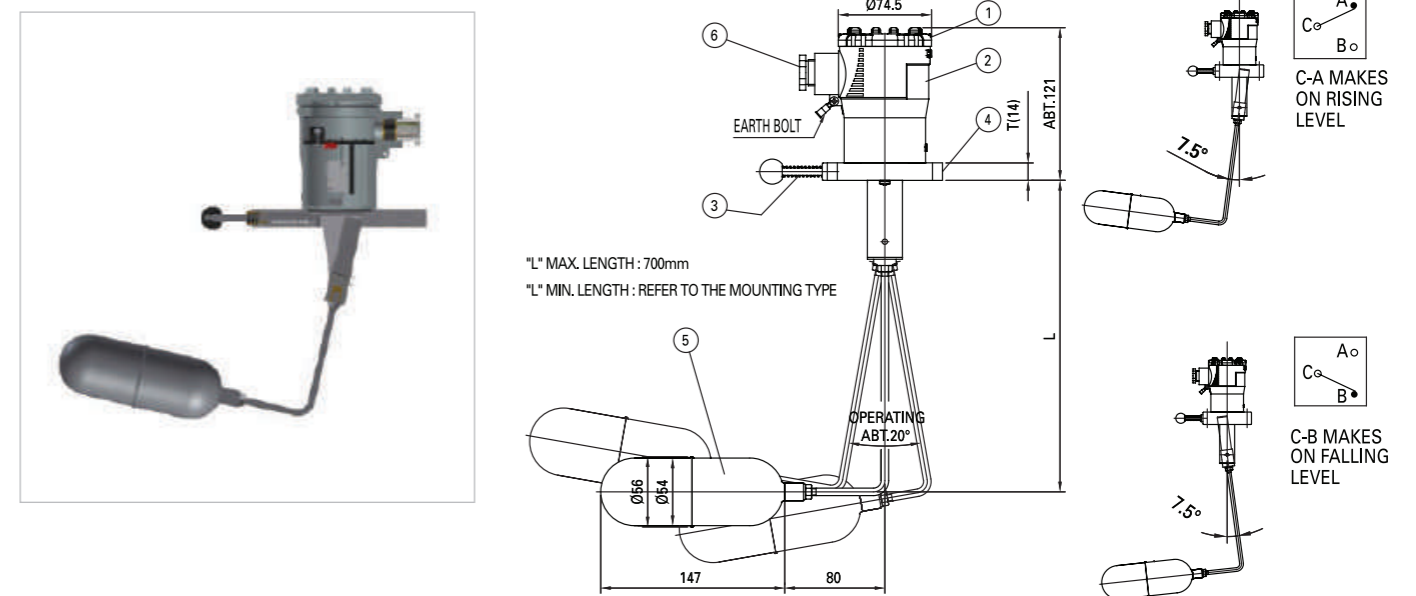
Contact form



Outline / Dimensions (Horizontal type : FMS-H Series)



Outline / Dimensions (Vertical type : FMS-V Series)

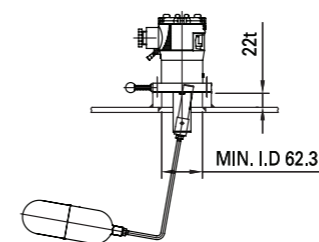


Standard model and specification

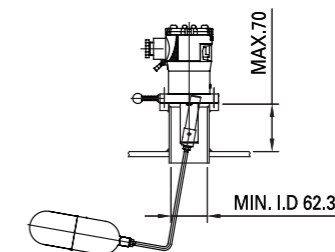
Type	Application	Max. pressure (kg/cm ²)	Max. temperature (°C)	Switch contact rating	Min. Sp.Gr	Cable entry	Material		
							Float	Flange	Switch body
Standard Type	General liquid	10	180	250VAC,5A	0.78	15b (PF1/2")	SUS304	ADC	ADC
Differential Type	Widely Differential	10	180	250VAC,5A	0.8	15b (PF1/2")	SUS304	ADC	ADC
Explosion Proof Type	Hazardous area	10	180	250VAC,5A	0.78	NPT1/2"	SUS304	SUS304	SCS13

- Optional informations
1. Material(SUS304, SUS316)for wet parts including float and flange is also available on request.
 2. Cable entry of 3/4" (JIS F 20 a, b, or c)is also available on request.
 3. Flanges of larger nominal diameter than the standard ones are also available on request.
 4. Non-explosion proof models can be used as intrinsically safe type joined with I.S barrier.

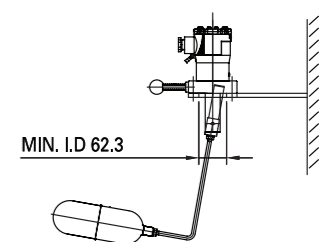
SET-ON FLANGE MOUNTING
MIN. INSERTION LENGTH : 120mm



SLIP-ON FLANGE MOUNTING



WALL BRACKET MOUNTING
MIN. INSERTION LENGTH : 120mm



Level Switches

Displacement Type Level Switch

Model : DMS-Series



Electric switch mechanism

Features

- Wide differential
- Fully sealed
- Large contact rating of 250VAC, 15Amp.
- Easy maintenance
- Durable float
- Unaffected by liquid agitation

Application

Displacement type level switches are widely used for Coal tar fuel tanks, Heavy fuel oil tanks, Settling tanks, Sludge tanks, Sewage tanks, Fresh water tanks, Lub. oil tanks, D.O tanks, Bilge well and others.

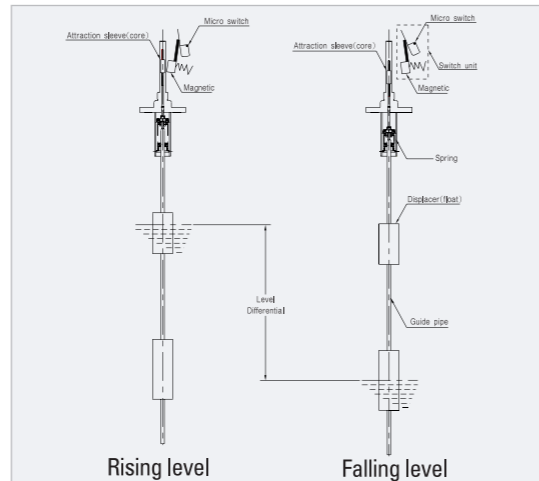
Operating principle

This level switch consists of compression spring, displacer and switch unit in which micro switch and magnetic are assembled.

The operation is based upon simple buoyancy whereby a spring is loaded with weighted displacer which are heavier than the liquid.

Immersion of the displacers in the liquid results in buoyancy force change, which moves the spring upward. Simultaneously, the spring is retracted or extended and the attraction sleeve moves upward into the field of external magnet in the switch unit.

The contact of micro switch is changed by magnetic force as the attraction sleeve is in the field of magnet point force. This principle allows adjustment of the switching point by moving the displacer along the guide pipe.



Model number code system

- DMS -** [] - [] - [] - []
- Symbol of Displacement Type Level Switch
 - Connection size
 - 5 : JIS 5K 80A FF
 - 6 : JIS 10K 80A FF
 - 7 : JIS 5K 100A FF
 - 8 : JIS 10K 100A FF
 - 9 : JIS 5K 25A FF for SS Type (side-side mounting type)
 - Option
 - T : With test device
 - W : Weather proof(IP56)
 - E : Explosion proof/IP56/Exd II C T₆
 - Enclosure
 - Internal Construction
 - G : Without float chamber
 - C : With float chamber
 - R : Guide wire
 - SS : With external float chamber (side-side mounting type)
 - Main application
 - 01A : High or low alarm
 - 01C : High or low control
 - 02A : High and low alarm
 - 02C : High and low control
 - 03AC : High alarm / Mid. and low control
 - 03CA : High and Mid. control/low alarm

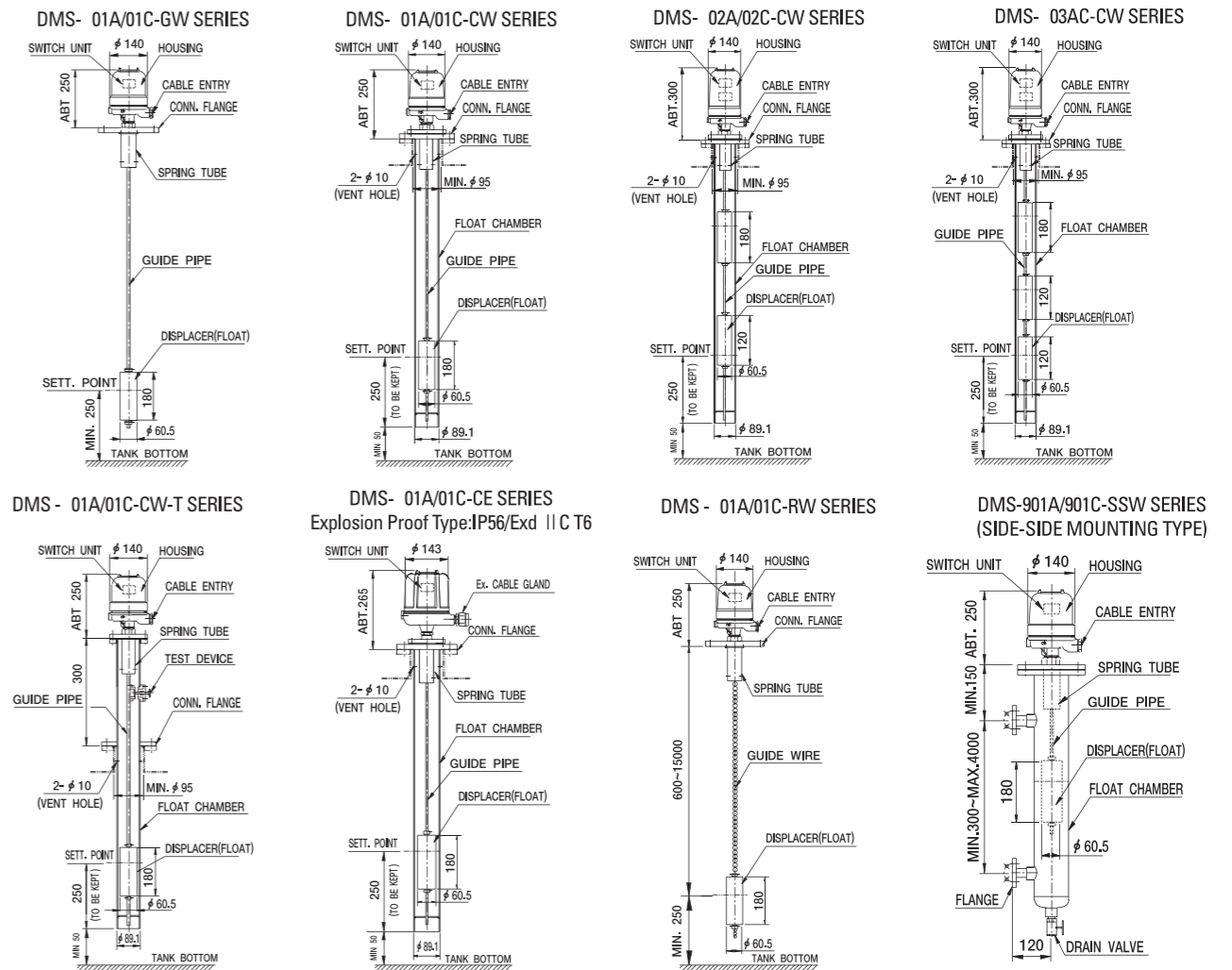
Standard model and specification

Model	Main application	Connection	Max. setting range(mm)	Setting accuracy (mm)	Min. Sp.Gr	Max. press. (kg/cm ²)	Max. temp. (°C)	Switch contact rating	Cable entry	Material			
										Housing	Flange	Float	Float chamber
DMS- 01A	High or Low alarm	Top flange type	220 ~ 5000	± 8	0.85	10	180	250VAC, 15A	15b	ADC	SS41	SUS304	SUS 304
DMS- 01C	High or Low control												
DMS- 02A	High and Low alarm	Top flange type	220 ~ 4500	± 8	0.85	10	180	250VAC, 15A	15b	ADC	SS41	SUS304	SUS 304
DMS- 02C	High and Low control												
DMS- 03AC	High alarm/ Mid. and low control	Top flange type	220 ~ 4000	± 8	0.85	10	180	250VAC, 15A	15b	ADC	SS41	SUS304	SUS 304
DMS- 03CA	High and Mid. control / Low alarm												

Optional informations

1. Material (SUS316) for wet parts including mounting flange, float chamber is also available on request.
2. Cable entry of 3/4" (JIS 20 a, b, or c) is also available on request.
3. Non-explosion proof models can be used as intrinsically safe type jointed with I.S barrier.
4. Please consult with our factory when the other press. / temp. is required.

Outline / Dimensions



Differential range and contact form

NUMBER OF SWITCH UNIT	ONE(1)	TWO(2)		
		DMS-□01A/01C	DMS-□02A/02C	DMS-□03AC
MAIN MODEL	DMS-□01A/01C	DMS-□02A/02C	DMS-□03AC	DMS-□03CA
DIFFERENTIAL(mm) * 1	30 TO 50	UPPER:30 TO 50 LOWER:30 TO 50	UPPER:30 TO 50 LOWER:200 TO 4500	UPPER:200 TO 4500 LOWER:30 TO 50
CONTACT OPERATION				
CONTACT CONFIGURATION	SPDT			
	DPDT			

* 1(Differential) is available for the range from the actuation level of the switch to the reset level

Level Switches

Float Operated Type Level Switch

Model : OMS Series



Electric switch mechanism for low temp.

Electric switch mechanism for high temp.

Electrical switch mechanism

- Dry contact switches are recommended for critical environmental conditions.
- Standard switch mechanisms are offered in rugged stainless steel construction.
- Dry contact mechanisms are supplied in both SPDT & DPDT. Generally a maximum of two mechanisms per single control are available as standard.

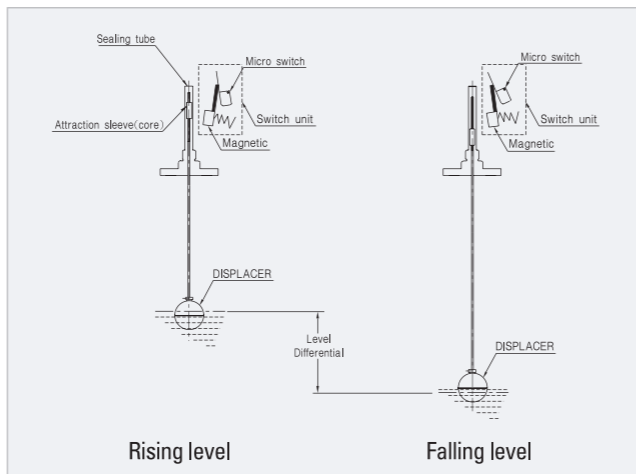
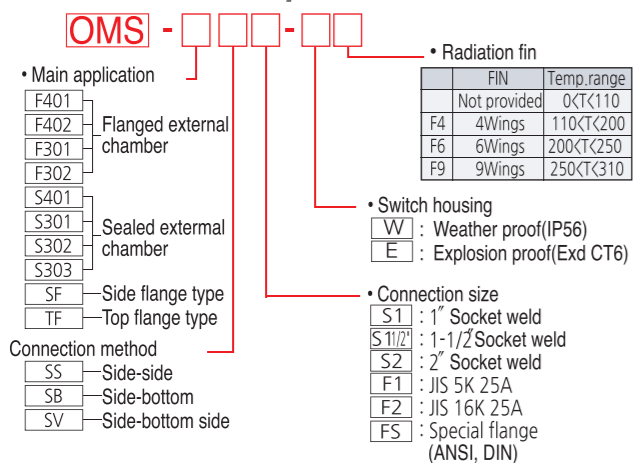
Features

- High load carrying capacity
- Environmental safety
- Vibration resistance

Operating principle

This level switch consists of displacer, switch unit in which micro switch and magnetic are assembled. The operation is based upon simple buoyancy. Immersion of the displacer in the liquid results in buoyancy force change, which moves the attraction sleeve upward or downward. Simultaneously, the contact of micro switch is changed by magnetic force as the attraction sleeve is in the field of magnet force. This principle allows adjustment of the switching point up to 15mm by moving the switch unit position.

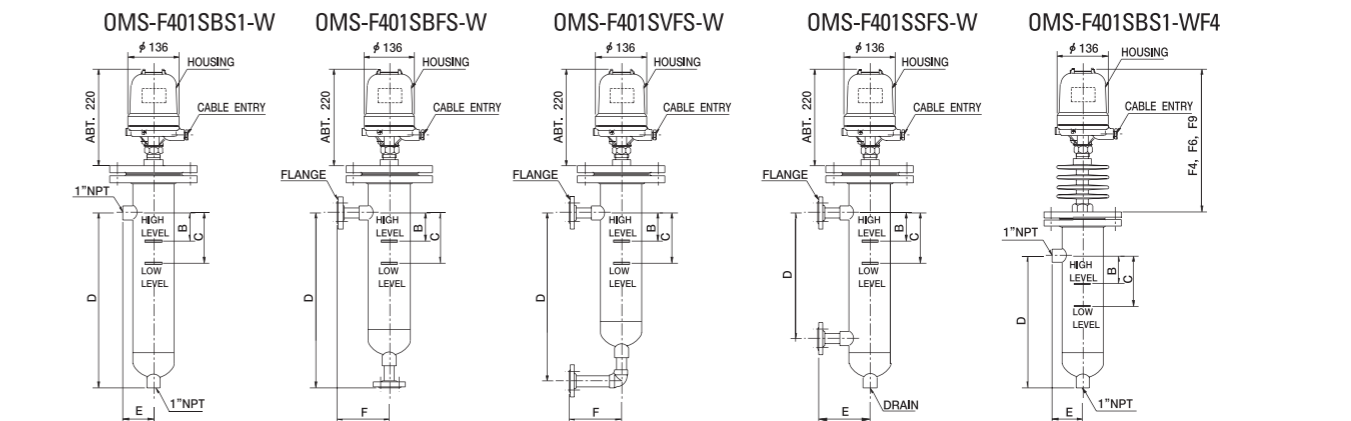
Model number code system



Standard model and specification

Model	Chamber material and pipe size	Max. No. of switch mechan.	Control press. rating				Minimum liquid Sp.Gr	Switch contact rating	Switch contact type
			Psig		Bars				
			100.F	750.F	38.C	400.C Max.			
OMS-F401	Carbon steel (4")	2	285	95	20	7	0.57	120VAC, 15A	SPDT
OMS-F402	Carbon steel (4")	2	600	450	41	31	0.65	120VAC, 15A	SPDT
OMS-F301	Carbon steel (3")	1	285	95	20	7	0.67	120VAC, 15A	SPDT
OMS-F302	Carbon steel (3")	1	350	260	24	18	0.67	120VAC, 15A	SPDT
OMS-S401	Carbon steel (4")	2	600	450	41	31	0.65	120VAC, 15A	SPDT
OMS-S301	Carbon steel (3")	1	300	225	21	16	0.57	120VAC, 15A	SPDT
OMS-S302	Carbon steel (3")	1	350	260	24	18	0.67	120VAC, 15A	SPDT
OMS-SF	Carbon steel	1	230	95	16	7	0.50	120VAC, 15A	SPDT
OMS-TF	Carbon steel	1	225	165	16	11	0.81	120VAC, 15A	SPDT
OMS-S303	Carbon steel	1	285	95	20	7	0.70	120VAC, 15A	SPDT

Outline / Dimensions for flange external chamber type

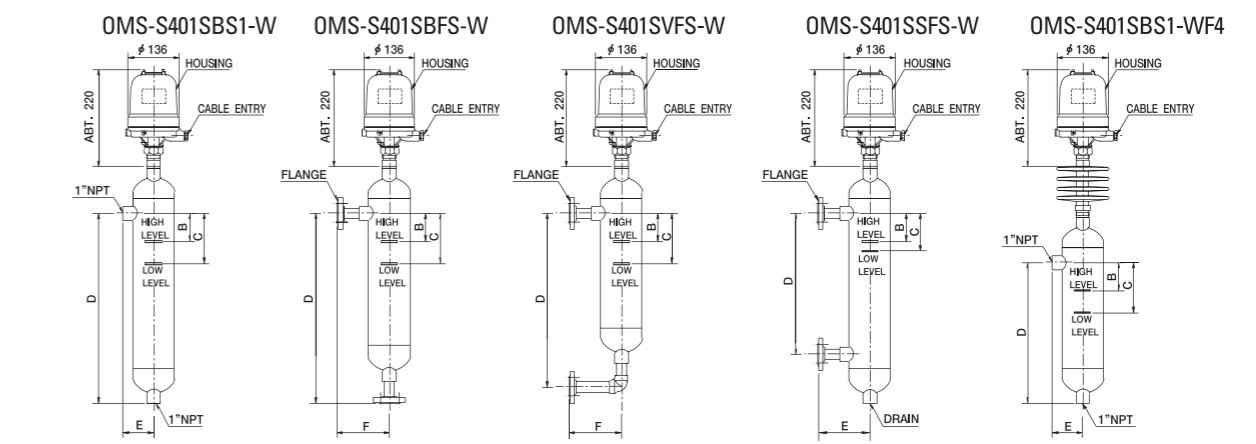


Model	B(1)		C(1)		D(2)		E(2)		F	
	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
OMS-F401	3	76	4	102	10 1/2"	267	3 11/16"	94	6 1/2"	165
OMS-F402	2 1/2"	64	3 1/4"	83	10 1/2"	267	3 11/16"	94	6 1/2"	165
OMS-F301	3	76	4 1/4"	108	9	229	3 3/16"	81	6	152
OMS-F302	3	76	4 1/4"	108	9	229	3 3/16"	81	6	152

(mm)

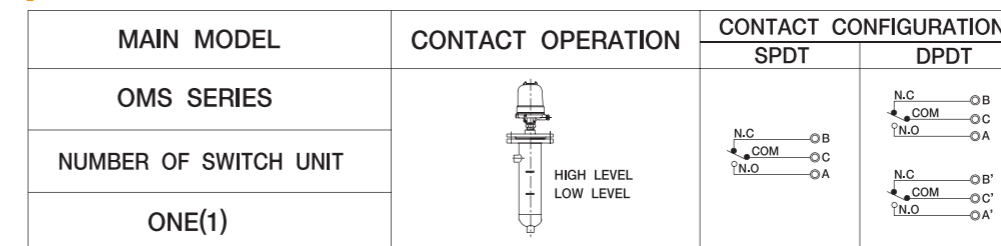
Height of housing(single switch function)			
Number of radiation fins			
0(F0)	4(F4)	6(F6)	9(F9)
250	357	407	467

Outline / Dimensions for sealed external chamber type



Model	B(1)		C(1)		D(2)		E(2)		F	
	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.
OMS-S401	2 1/4"	57	3"	76	10 1/2"	267	3 11/16"	94	6 1/2"	165
OMS-S301	2 5/8"	67	3 1/2"	89	10 1/2"	267	3 11/16"	94	6	152
OMS-S302	2 1/2"	64	3 3/4"	95	9"	229	3 3/16"	81	6	152

Contact form



Note

- 1) Nominal dimensions depend on minimum differential setting, minimum liquid specific gravity and single switch function.
- 2) Dimensions are for 1" NPT or S.W. type only.

Level Switches

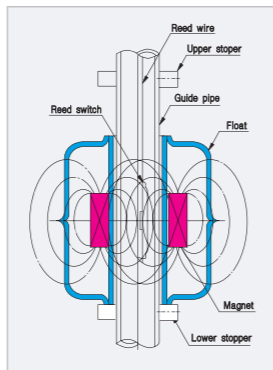
Reed Switch Type Float Level Switch



With test device

Operating principle

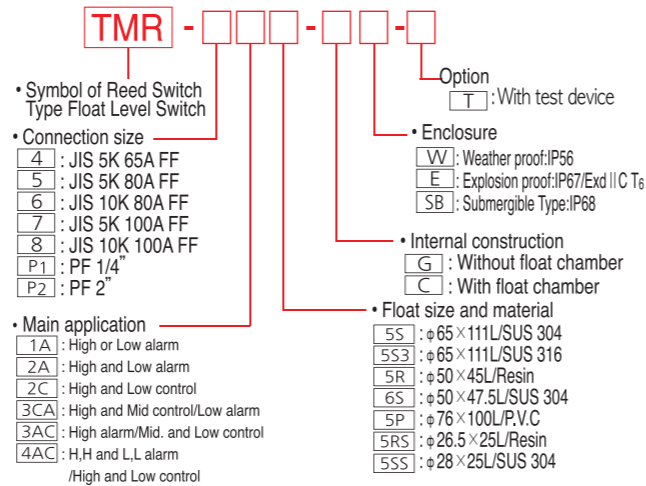
Reed switch type float level switches have a magnet built in the float and a reed switch set inside guide pipe. The reed switch is turned on and off with the up-and-down liquid level. The two stoppers located above and below enable float shift range to limit, thereby providing a self-hold reed switch contact operation.



Features

- Compact construction
- Stainless steel and plastic models
- Totally enclosed electric parts
- Wide selection of switch functions and ratings
- Easy maintenance

Model number code system



Application

REED SWITCH TYPE FLOAT LEVEL SWITCHES are widely used for Water, Seawater, Oil and general liquids.

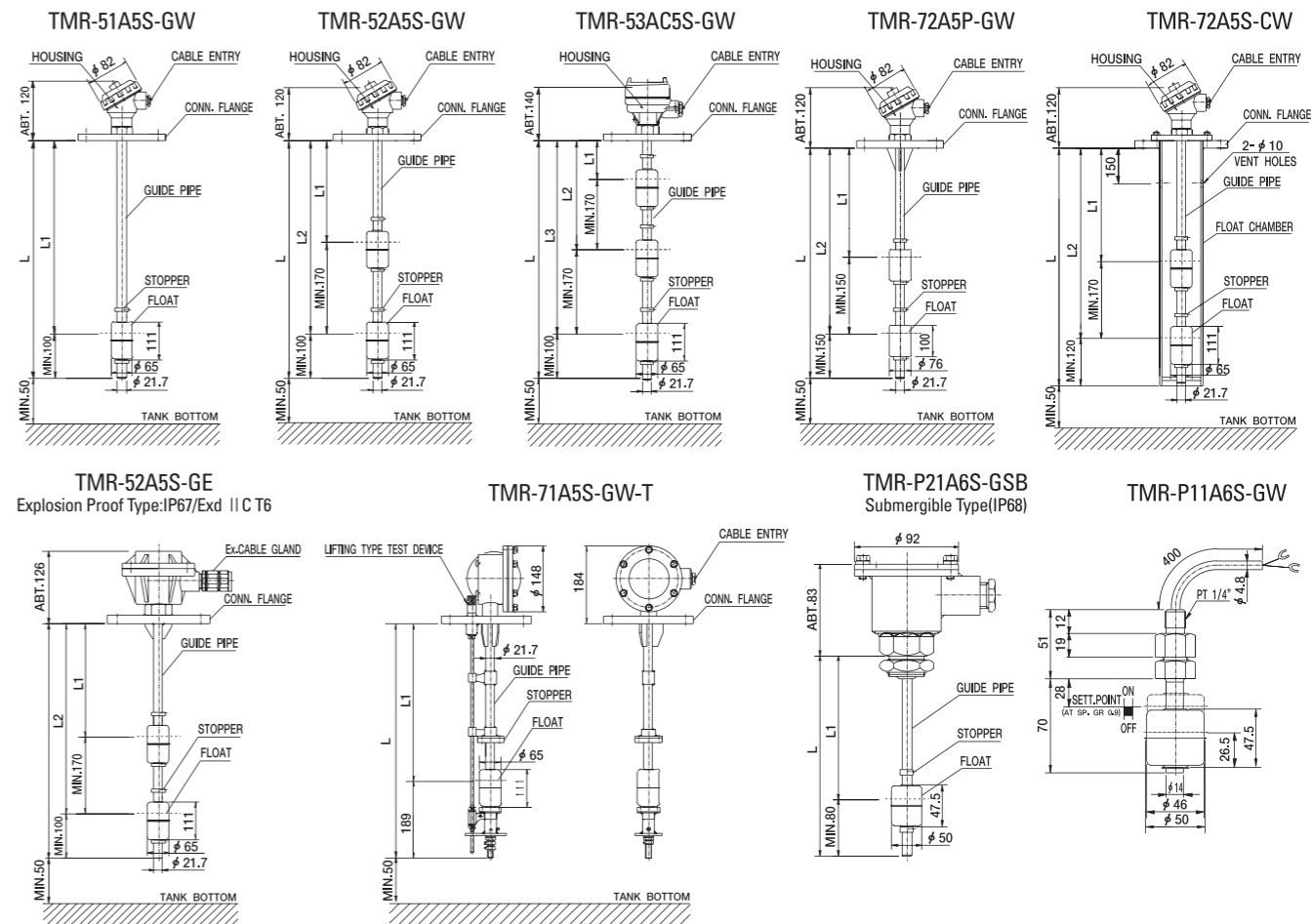
Standard model and specification

Model	Application	Max. press. (kg/cm ²)	Max. Temp. (°C)	Mounring flange (standard)	Min. Sp.Gr	Connection	Maximum detection point	Cable entry	Contact form/Rating	Material			
										Housing	Flange	Float	Guide pipe
TMR-5 5S-G	General liquid (Oil, Water)	10	80	JIS 5K 80A	0.85	Top flange type	6	15b	SPST 250VAC,0.5A	AC	SS41	SUS304	SUS304
TMR-5 5S3-G	Anti-corrosive liquid	10	80	JIS 5K 80A	0.85	Top flange type	6	15b	SPST 250VAC,0.5A	AC	SUS304	SUS316	SUS316
TMR-4 5R-G	Low specific gravity liquid	5	70	JIS 5K 65A	0.6	Top flange type	6	15b	SPST 250VAC,0.5A	AC	SS41	Resin	SUS304
TMR-8 5P-G	Anti-corrosive liquid	3	50	JIS 10K 100A	0.7	Top flange type	6	15b	SPST 250VAC,0.5A	P.V.C	P.V.C	P.V.C	P.V.C
TMR-P1 5RS-G	Mini vessel	5	70	PF 1/4	0.7	Thread type	2	-	SPST 250VAC,0.5A	-	-	Resin	SUS304
TMR-P1 5SS-G	Mini vessel	10	80	PF 1/4	0.9	Thread type	2	-	SPST 250VAC,0.5A	-	-	SUS304	SUS304
TMR-4 6S-G	General liquid	10	80	JIS 5K 65A	0.85	Top flange type	6	15b	SPST 250VAC,0.5A	AC	SS41	SUS304	SUS304

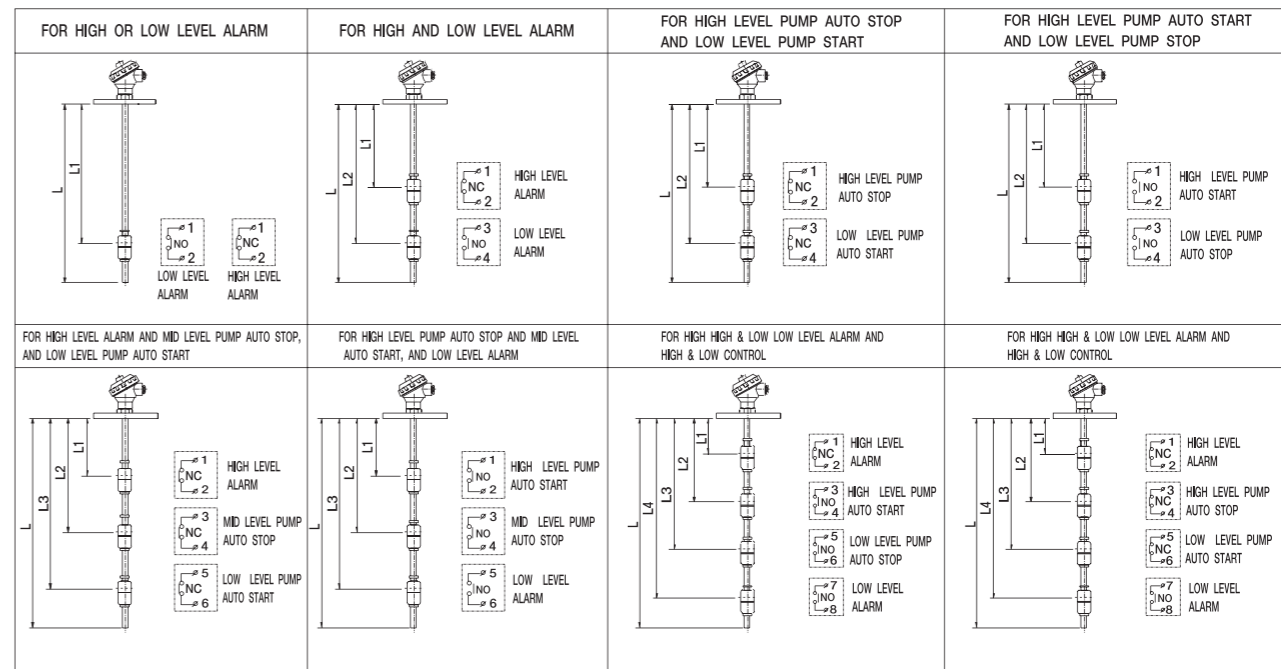
OPTIONAL INFORMATIONS

- (1) Non-explosion proof models can be used as intrinsically safe type joined with I.S barrier.
- (2) Cable entry of 3/4" (JIS 20 a, b or c) is also available on request.
- (3) Flanges of larger nominal diameter than the standard ones are also available on request.

Outline / Dimensions



Contact form



Nominal condition is the empty condition without liquid in the tank.

- 1) The arrangement is the same even with more detection point.
- 2) The detection points, if up to 3points, can be independently terminal connected as desired.

Manufacturing Line Authorized by the Quality

Level Switches

Pneumatic Type Level switch

Model : HPS

Diaphragm type Alarm specially for High-Viscosity liquid sewage, bilge, oil etc.



General

The pneumatic alarm switch can be used for all sort of liquids and is specially suitable for sludgy and high-viscosity liquid. Because it is a non-contact type alarm switch without a float unit. If liquid pressure is transferred through a pipe, the diaphragm is moved by difference with air pressure. and then switch works on/off.

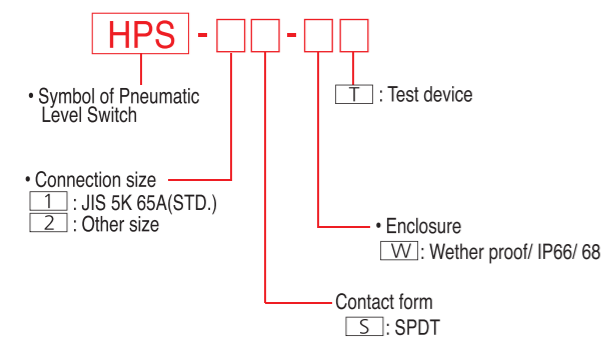
Features

- High reliability and durability by pleated diaphragm.
- Stabilized behavior.
- Care free from such troubles as corrosion and adhesion.
- Designed for all kind of liquid
- Compact and cost saving design.
- Easy to install and maintenance.
- Lifting type manual test device which can check the function.

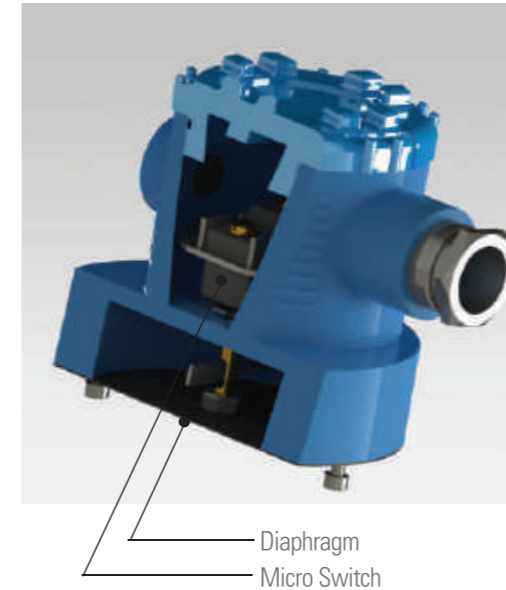
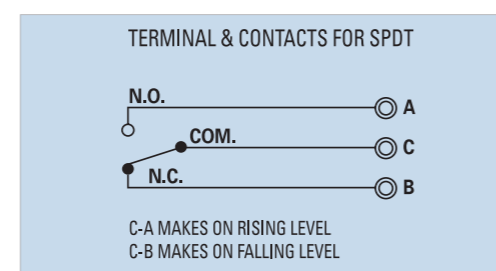
Application

Various chemical equipment for industrial use, Water disposition equipment. Air conditioning equipment, Asphalt plant, Transportation equipment, Various equipment for ships.
Heavy oil tank, Lubricant tank, Centrifugal separator, Stirring tank, Water making equipment, Foodstuff & Beverage manufacturing machine, Filler, Cleaner Water heater, Washer, etc.

Model number code system



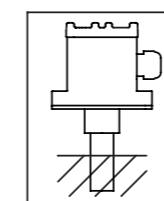
Contact form



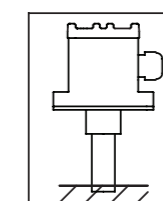
Technical specifications

- Model : HPS
- Material : - Cover : Al. Die-Casting
- Main body : Al. Die-Casting
- Low body : SUS304
- Diaphragm : NBR
- Pipe : SUS304
- Contact Form/rating : SPDT/250VAC, 15A
- Accuracy : ±5mm on level rise of fall
- Max. working pressure : 1Kg/cm²
- Max. working Temp. : 80°C
- Paint Color : 7.2BG 7/2 K-type
- Working point : 65mm
- Reset point : 45mm
- Differential : 20mm
- Min. pipe length : 100mm
- Enclosure : IP 66/68

Wiring diagram

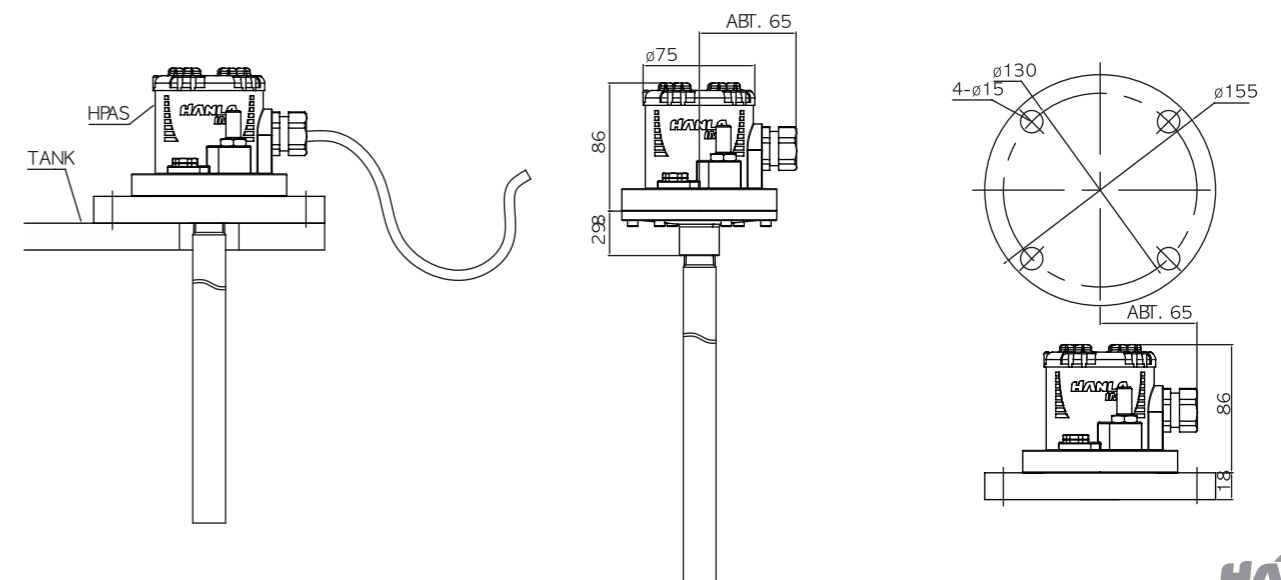


C-A MAKES ON RISING LEVEL



C-B MAKES ON FALLING LEVEL

Outline / Dimentions



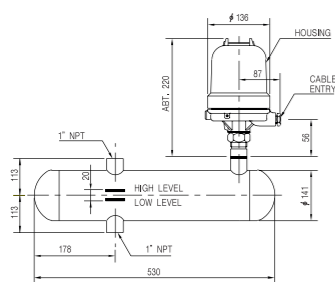
Manufacturing Line Authorized by the Quality

Level Switches

Float Operated Type Level Switch

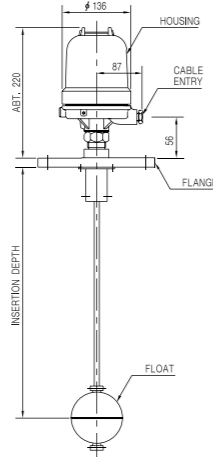
Outline / Dimension for Sealed external chamber type

Model : OMS-S303 Type



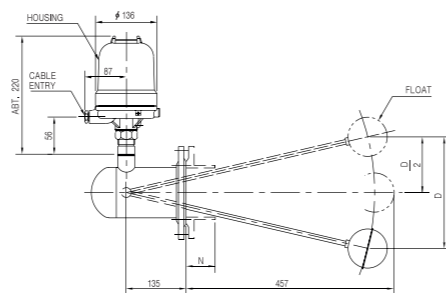
Outline / Dimension for Sealed external top mounted

Model : OMS-TF Type



Outline / Dimension for Sealed external side mounted

Model : OMS-3F Type



Insertion depth		Min.level differential (D)		Maximum differential(D) for 4" sch.40 pipe with nozzle length(N)													
IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.	IN.	MM.		
18	457	2	51	2	51	4	102	6	152	8	203	10	254	12	305	14	365
10	254	1	25	7	178	5	127	4	102	-	-	-	-	-	-	-	-

Flow Detection Switch

Model : FWS-3P

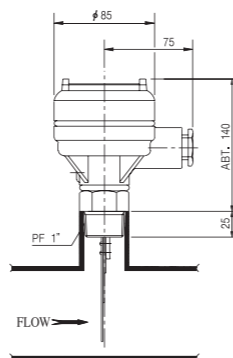


Introduction

This flow switch is used for protecting equipment or pipe line system from excessive flowing in the pipe when the flow is reduced or increased. When the liquid is flowing excessively, the micro switch in the housing is operated by hydrostatic pressure caused by flowing in the pipe. If flowing is stopped, the lever arm will be returned to the normal position by the spring in the switch housing.

Technical specification

- Mounting Method : Screw/Flanged
- Mounting Size : 1" PT
- Working Pressure : Atm.
- Process Temp. : - std.:60°C - option:120°C
- Enclosure: Weather proof/IP56
- Material - Head : AC
- Connector : BS
- Paddle : SUS304
- Output : 1x SPDT
- Conduit conn. : 3/4" PF(F)
- Switch type : Micro switch
- Contact Rating : 250VAC, 15A



Application

- When the flowing is higher or lower, it is used for protecting the equipment, pump, motors from them.
- Controls of pumps etc.
- Starts pumps, engines etc.

Quick Float Type Level Switch

Model : HTUM Series



Operating principle

Quick float level switches contain a switch units(Reed switch or micro switch) inside a float casing connected to a reed cable. Also, the reed cable is assembled with the float casing completely. When a float moves up and down due to buoyancy, electrical contacts in the switch unit converted to close or open.

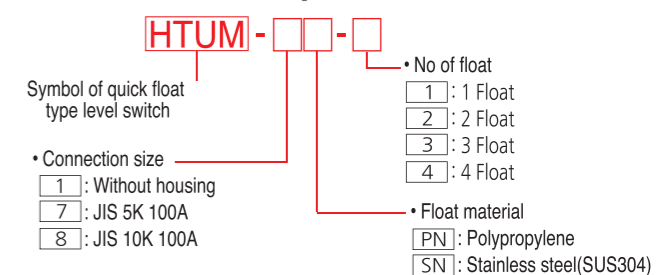
Application

- This product is used for atmospheric pressure and ambient temperature applications.
- Wells, locks, rivers etc.
- Waste water, sewage, drain, sludge tank etc.

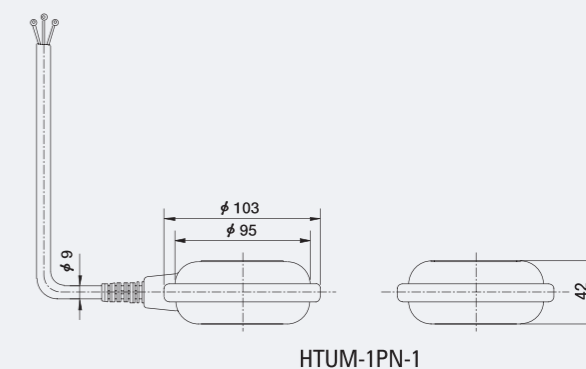
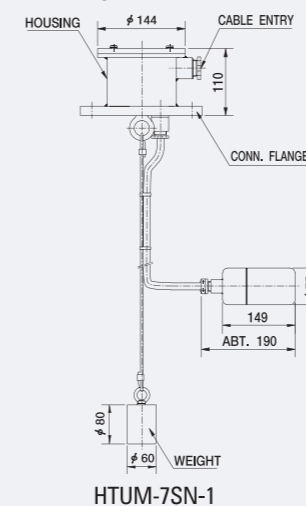
Features

- Simple and low cost design
- Easy installation and maintenance
- Stainless steel and plastic models

Model number code system



Outline / Dimensions



Standard model and specification

Model	Connection	Float Material	Max. Pressure (kg/cm ²)	Max. Temp. (°C)	Protection (float)	Switch Type	Switching Distance (mm)	Switch Form/Rating	Cable Max. Length	Cable Entry
HTUM-7PN-□	Top flange type	Polypropylene	10	60	IP68	Micro switch	10 ~ 50	SPDT 250VAC, 10A	10,000mm	20 (PF3/4)
HTUM-7SN-□	Top flange type	Stainless steel (SUS304)	10	80	IP68	Reed switch	10 ~ 50	SPST or SPDT 250VAC, 0.5A	5000mm	20 (PF3/4)

■ Please consult with our factory when the other type is required

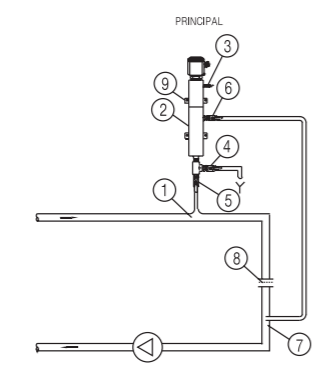
Level Switches

Capacitive Type Oil Detector

• OIL CONTAMINATION DETECTOR ON THE PIPING LINE



PRINCIPAL PIPING DIAGRAM



- ① Tapping point for partial flow 1/2" PT on the top of the cooling water line
- ② Measuring pot with oil detector
- ③ Vent valve
- ④ Sampling & Cleaning cock
- ⑤ Inlet isolating valve
- ⑥ Outlet isolating valve with cleaning process
- ⑦ Return partial flow 3/8" PT
- ⑧ Orifice plate
- ⑨ Wall mounting plate

General

This device is installed in the cooling water line of ship and is designed to detect oil in cooling water. This system consists of oil detection pot, capacitive compact switch and control unit. Oil detection pot for separating oil and water has not cock valve for isolating the input and output line. Capacitive type oil detector is installed in oil detection pot, detecting oil isolated from water on the top of oil detection pot. Control unit receive whether it is detected or not in signal from the capacitive compact switch and convert point of contact to relay contact.

Technical specification

- Max. Pressure : 5kg/cm²
- Max. Temp. : 110°C
- Flow : 100~300ℓ /h
- Sensitivity : Approx. 50ml oil
- Power supply : AC 110/220V
- Output : Relay output(DPDT)

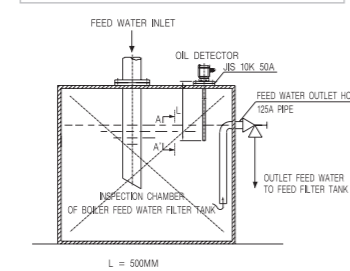
• OIL DETECTOR ON THE TANK



General

Boiler feed filter tank have a inspection chamber or devide area in tank to accumulate oil when oil contamination in boiler water. When incoming oil contaminated water in inspection chamber, the feed water only go out to feed filter tank and oil with be accumulate in inspection chamber until drainage. When the normal conditions, the end part of electrode will be in water level always. But the water contaminate oil that the oil is accumulate top level in inspection chamber, the electrode will be in oil level instead of water level. The oil detector will activate alarm. After drain oil in inspection chamber, the oil detector return to normal condition.

INSTALLATION ARRANGEMENT



Technical specification

- Type : Capacitive oil detector
- Power supply : AC 110/220V
- Output : Relay contact(DPDT)
- Operating pressure : 10bar
- Max. Temp. : 100°C
- Protection : IP66
- Conn. size : G 1-1/2"

Vibration Type Level Switch for Liquid and Solid

Model : SWING Series



Model : HVPS Series



Introduction

VEGASWING, the vibrating sensor which uses tuning fork technology, finds almost universal applications in industrial liquid level switching, and offers the choice of four output options from compact electronics. Innovative design has produced several practical, user-orientated features, such as the 'universal' power input and modular electronics incorporating self-diagnostics. Attention to quality in design and production has created a level switch of unparalleled sensitivity and reliability, even for 'heavy-duty' installations.

Specifications

- Power source:20~250VAC, 20~250VDC
- Power consumption:Max. 3N
- Output: - Relay output/1x SPDT
 - Transistor output
 - Non-contact switch
- Viscosity range:0.2~10,000mPas
- Density range:0.7~2.5g/m³
- Protection:IP66

Operating principle

The piezo-electrically stimulated oscillating prove vibrates at its mechanical frequency of resonance of 125Hz. If the probe is covered by the bulk material, the damping thus generated is registered electronically and a corresponding signal output is actuated. The oscillation of the device ensures that it features certain self-cleaning properties. The device is used for level detecting in all types of containers and silos, it can be used with all powdery and granulated bulk materials that do not show a strong propensity to form crusts or deposits.

Standard specifications

- Material : - Housing:ADC
 - Connector:SUS304
 - Tuning fork:SUS304
- Max. Pressure : 16bar
- Max. Temp. : 200°C
- Enclosure : IP65
- Main voltage : AC 230V / AC115V / DC24V
- Installed load : Max. 1A(Relay)
- Output : 1x SPDT
- Min. Powder density : Approx. 30g/L
- Cable gland : PG 13.5

Model number code system

HVPS - [] - [] - [] - []

- Symbol of Vibration Type Level Switch
- Shape of vibration
 - 2020 : Standard design
 - 2030 : Extension probe(up to 4M)
 - 2050 : Extension cable(up to 20M)
- Connection size
 - TF : PF 1 1/2" Thread
 - TT : PT 1 1/2" Thread
 - FA : JIS 10K 50A FF/ANSI 150# 2RF
 - FB : JIS 10K 80A FF/ANSI 150# 3RF
 - FC : ANSI 300# 2RF
 - FD : ANSI 300# 3RF
 - FF : Other size
- Product temp
 - NT : Up to 100°C
 - HT : Up to 150°C
 - AT : Up to 200°C (With air cooling device)
- Ext. length (Applied To 2030, 2050 Type)

1	250-499mm	4	2000-3999mm
2	500-999mm	5	4000-9999mm
3	1000-1999mm	6	10000-20000mm
- Option
 - [] : Locking device
 - [W] : Weather proof(IP56)
 - [E] : Explosion proof-/IP56/Exd IIC T6

Level Switches

Paddle Type Level Switch for Solid

Model : RN 3000 Series



Application

- It is used wherever
- Dustlike
 - Powdery
 - Granulated
 - Granular

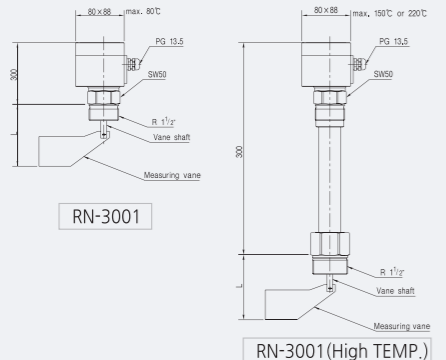
Standard specification

- Mechanical data
- Material : - Housing: Die-casted housing
 - Connector: Steel galvanized or stainless steel
 - Vane shaft: SUS304
 - Process connection : Thread or flange according to selection
 - Enclosure : IP65
 - Speed of measuring vane : 11/min
 - Pick up delay : approx 1.3 sec.

- Electrical data
- Mains voltage : 220...240V / 50-60Hz
 - : 110...200V / 50-60Hz
 - Signal output : 1x SPDT Micro switch
 - Cable gland : 1x PG 13.5

- Operating conditions
- Pressure : Max. 0.8bar / 5bar / 10bar
 - Temperature : Max. 80°C / 150°C / 220°C
 - Powder density : Down to 20g/l

Outline / Dimensions



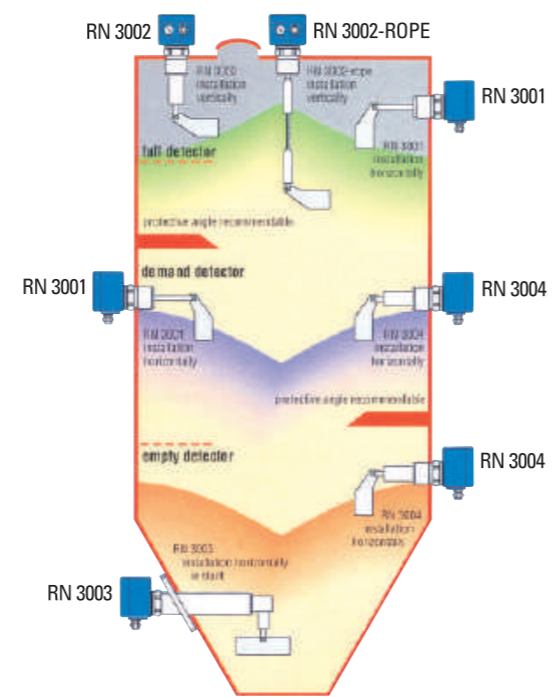
Operating principle

A low revolution synchronous induction gearing motor drives a rotating measuring vane, which is mounted at a container. As soon as the material level, which is to be checked, reaches the measuring vane, it is handicapped in his rotation. The synchronous induction motor is freely suspended within the housing. The caused reaction torque is used to operate a micro switch giving a suitable electrical signal and to stopping the motor. When the vane becomes free again due to the drop in material level, a spring draws the motor back into his operating position, the micro switch returns to his initial position and the motor is switched on. The electrical output signal is then switched over.

Features

- Appropriate on powder and granulated bulk goods
- A reliable and simple principle of function
- Maintenance-free
- Small and compact design

Mounting instructions



MODEL SELECTION GUIDE

Application	Type	RN 3001	RN 3002	RN3002-ROPE	RN 3003	RN 3004	RN 3005	RN 3006
full detector		x	x	x	x	x		x
demand detector		x		x*	x	x		x
empty detector		x		x*	x	x		x
loading telescope							x	
vertical		x	x	x		x	x	x
oblique from the top		x				x		x
horizontal		x			x	x		x
oblique from the bottom		x				x		x
dust Ex zone 10/11		x	x	x	x	x	x	x
temperature up to 220°C**		x	x	x	x	x	x	x
container over pressure 1 up to 10bar		x	x	x	x	x	x	x

* not for zone 10/11 ** zone 10/11 upto 200°C

Electric Pressure Type Level Transmitter

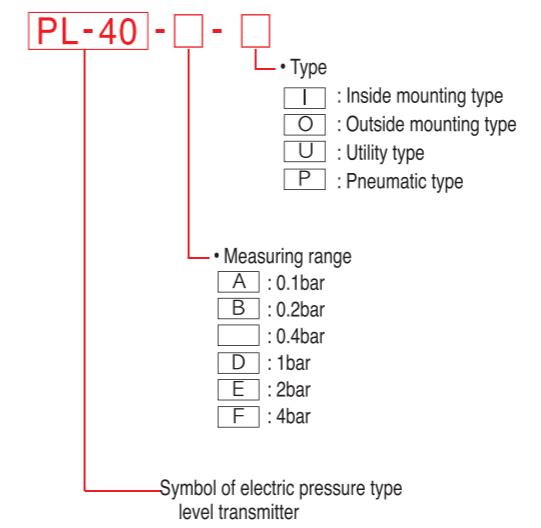
Model : PL-40



Application

- Ballast tank remote reading
- Draft remote reading
- Heeling and trim remote reading
- Fuel oil tank remote reading
- Waste waters, wells, locks, rivers etc.

Model number code system



Operating principle

The Hanla Pressure Type Level Transmitter is for continuously measuring the liquid level of ballast tank, draft and fuel oil tank in the marine ships as well as tanks containing media. The PL40 is a 2-wire, 4-20mA level transmitter consisting of a transducer and an amplifier connected via a submersible vented cable. Pressure change in the front of the diaphragm will bring about a capacitance change in the cell of the transducer. This change will be transmitted to amplifier as a change in the electrical signal. The PL40 is manufactured in several ranges, and available. Especially the electro pressure type level transmitter can be connected to C.R.T. display cargo system, loading computer, indicator, and analog type indicator to measure the actual level.

Technical specification

- Output : 4 ... 20mA adjustable
- Accuracy : ± 0.2% F.S at 20°C
- Supply voltage : 12 ... 28VDC
- Range : Gauge 175mbar to 4bar
- Absolute 1400mbar to 4bar
- Overpressure : Gauge 6bar to 25bar
- Absolute 10bar to 25bar
- Diaphragm cell : Capacitive transmitter with ceramic diaphragm
- Materials
- Diaphragm : Ceramic
- Sensor Body : Stainless steel 316L
- Amplifier box : SCS13(Indoor) / SCS14(Outdoor)
- Special cable : Sheathed polyethylene cable
- Operating temperature range
- Transducer : -40~125°C
- Amplifier : -25~85°C
- Protection class
- Transducer : IP68/submersible
- Amplifier : IP66
- Intrinsic safety : Ex ia II c T5
- (Max. 50m cable between transducer and amplifier box)
- Cable length : 3m in standard (option : up to 50m)

Features

- High measuring accuracy
- Excellent stability
- Capacitive transmitter with Ceramic diaphragm
- High overload limit
- High temperature stability
- Corrosion resistance
- No hysteresis
- Marine class approval