LEVEL SENSORS

KF-300/KFE-3000

VERTICAL FLOAT SWITCH

BEST SELLING LINE IN TERMS OF LIQUID LEVEL CONTROL

CAT.No.F-141-1401E

KANSAI Automation Co.,Ltd.

VERTICAL FLOAT SWITCH
KF-300

BEST SELLING LINE IN TERMS OF LIQUID LEVEL CONTROL
GOOD AND RELIABLE COST PERFORMANCE

These products lined up with a wide variety of sizes and made of various materials can be applied to all and every process.

FEATURES

DURABILITY — A read switch being used, it can securely be good for the use of 10 million times.

CORROSION RESISTANCE — Wetted parts being made of SUS304(316) and corrosion-resisting resin, it can be used for various liquids.

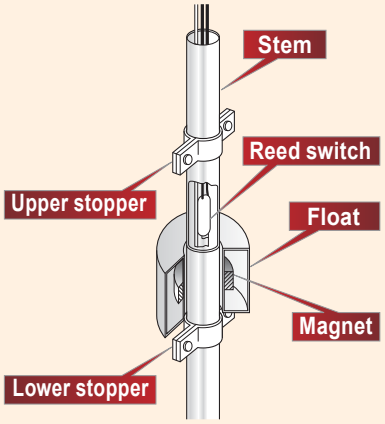
HIGH UTILIZATION — You can detect multi-points by increasing the number of reed switches as well as select many motions.

SAFETY — A reed switch being used, it can work in the environment of moisture, gas and dust with no problem.

EASY TO USE — The simple structure makes it easier to use.

PRINCIPLE OF OPERATION

The float switch under KF300 series housing a magnet inside a float as well as a reed switch inside a stem, it is designed to have the reed switch turn on or off with the built-in magnet which is subject to the rise and fall of liquid level.
Stoppers fixed on the upper and lower parts limit the moving range of the float, thus holding contact operations of the reed switch.



DESIGNATION OF MODEL

KF-3□□-□

Number of detecting points
1 One point
⟆ ⟆
5 Five points

Contact Capacity
2 60 VA
5 100 VA
6 Other special

Dimensions/Materials of Float & Stem

	Float dimension	Float material	Stem dimension	Specific Gravity of Liquid	Heatproof ℃
0	Φ60× 95 L	SUS	Φ22	0.92	100
1	Φ90×120 L	SUS	Φ22	0.63	100
2	Φ51× 60 L	SUS	Φ14	0.63	100
3	Φ60× 95 L	PVC	Φ22	0.75	50
4	Φ90×120 L	PVC	Φ22	0.55	50
5	Φ48× 70 L	P. P	Φ22	0.89	50
6	Φ60× 95 L	HT, PVC	Φ22	0.75	80
7	Φ90×120 L	HT, PVC	Φ22	0.55	80
8	Other special	e.g. teflon			

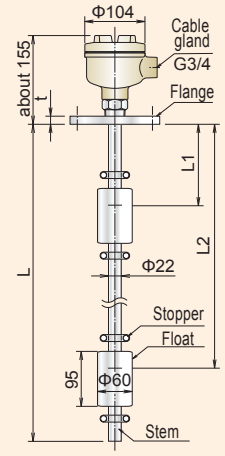
Top Flange Reed-switch Type

Generic Term of Liquid-level Meter

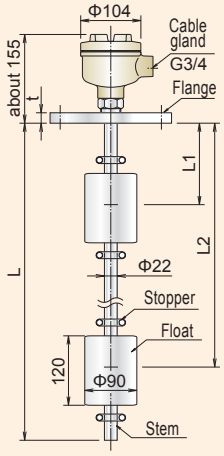
STANDARD SPECIFICATION & MODEL

SUS Type

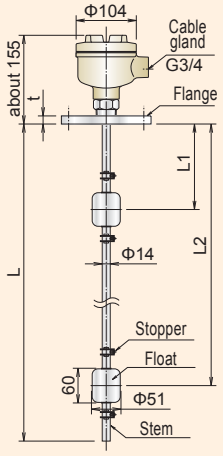
KF-302-□



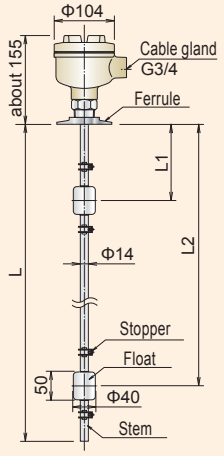
KF-312-□



KF-322-□



KF-382-□ Sanitary Specification



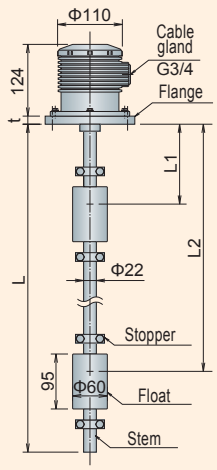
Specification \ Model	KF-302-□	KF-312-□	KF-322-□	KF-382-□
Application	Water/Oil Gen. Liquid	High Viscous Low Density Liquid	Small-caliber Low Density Liquid	Small-caliber Low Density Liquid
Withstand Pressure	490kPa	490kPa	490kPa	490kPa
Heat-resistant	100℃	100℃	100℃	100℃
Mounting Flange	Over JIS5k65A	Over JIS5k100A	Over JIS5k50A	Over IDF2S
Specific Gravity of Liquid	Over 0.92	Over 0.63	Over 0.63	Over 0.63
Float Shape	Φ60 x 95L	Φ90 x 120L	Φ51 x 60L	Φ40 x 50L
Float Material	SUS304 or 316	SUS304 or 316	SUS316L	SUS304 or 316
Stem Material	SUS304 or 316	SUS304 or 316	SUS304 or 316, 316L	SUS304 or 316
Flange Material	SS, SUS	SS, SUS	SS, SUS	SUS
Material of Terminal box	AC	AC	AC	AC
Cable Gland	G 3/4	G 3/4	G 3/4	G 3/4

* As for the flange, ANSI and JPI are also available. * Only a model, KF-322 can be made of SUS316L.
* KF-382 has the flange mounting as its standard. Flanges of JISK40A or over, & screw-in type, G2B or R2 can also be available.

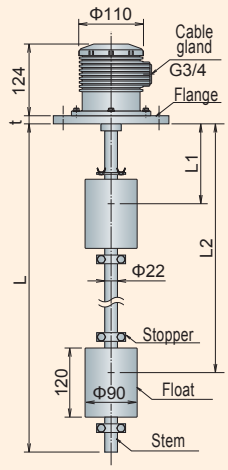
STANDARD SPECIFICATION & MODEL

Resin Type

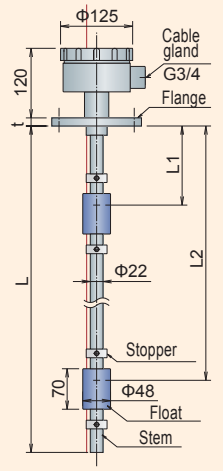
KF-332N-□



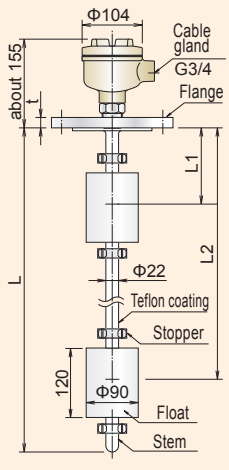
KF-342N-□



KF-352-□



KF-382-□ Sanitary Specification



Specification \ Model	KF-332N-□	KF-342-□	KF-352-□	KF-382-□
Application	Corrosive Liquid Gen. Liquid	Corrosive Liquid Gen. Liquid	Corrosive Liquid Small-caliber Type	Corrosive Liquid. Heat resistant
Withstand Pressure	196kPa	196kPa	196kPa	Normal pressure
Heat-resistant	50℃	50℃	50℃(80□when wetted part made of P.P)	100℃
Mounting Flange	JIS5K65A or over	JIS5K100A or over	JIS5K50A or over	JIS5K100A or over
Specific Gravity of Liquid	Over 0.75	Over 0.55	Over 0.89	Over 1.0
Float Shape	Φ60 x 95L	Φ90 x 120L	Φ48 x 70L	Φ90 x 120L
Float Material	PVC	PVC	P.P(can be made of PVC, liquid density be over 1.0.)	Teflon
Stem Material	PVC	PVC	PVC	Teflon
Flange Material	PVC	PVC	PVC	Wetted part/ teflon
Material of Terminal box	PVC	PVC	PVC	AC
Cable Gland	G 3/4	G 3/4	G 3/4	G 3/4

KFE-3000

Withstand-pressure Explosion-Proof ExdⅡBT4

IEC Certified Explosion-proof (in conformity with the Technical Standard)

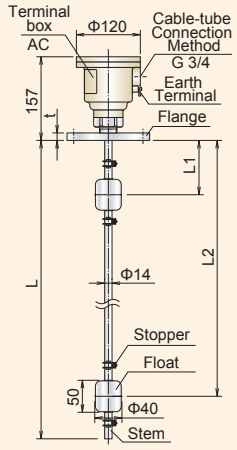
■ DESIGNATION OF MODEL

KFE-3□□□-□□□-□□

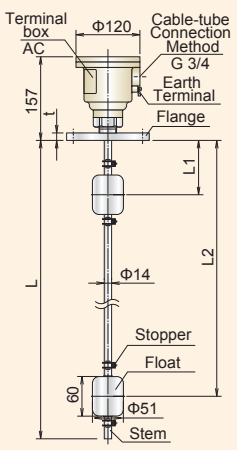
- **Float Material** 4 SUS304 / 6 SUS316 / L SUS316L
- **Float Outer-diameter** 4 Φ40 / 5 Φ51 / 6 Φ60 / 9 Φ90
- **Contact accuracy** 0 ±10mm (Standard) / A ± 5mm
- **Number of Detecting points** (1~5)
- **Contact capacity** 6 AC60VA Standard / 1 AC100VA [Optional order]
- **Cable-gland Specification**
  - 0 Cable-tube Connection Method G3/4
    * In accordance with Explosion-proof regulations, be sure to use CSFX-22B(ExdⅡB)manufactured by Shimada Electric Co., Ltd. when it comes to using the cable gland.
  - 1 G 3/4 Cable gland [Optional order] (Specify the cable outer diameter.)
  - 2 G 1/2 Cable gland [Optional order] (Specify the cable outer diameter.)
- **Stem Specification (Stem diameter/material)**
  - 340 Φ14 SUS304 / 344 Φ22 SUS304
  - 3L0 Φ14 SUS316L / 346 Φ22 SUS316
- **Vertical Float Type Level Switch Withstand-pressure Explosion-proof Construction ExdⅡBT4**

STANDARD SPECIFICATION & MODEL

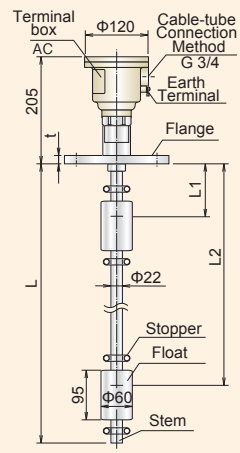
KFE-3L0□-□□□-44



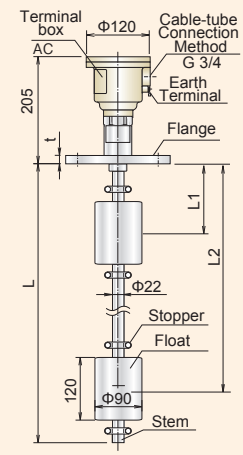
KFE-3L0□-□□□-5L



KFE-344□-□□□-64 KFE-346□-□□□-66

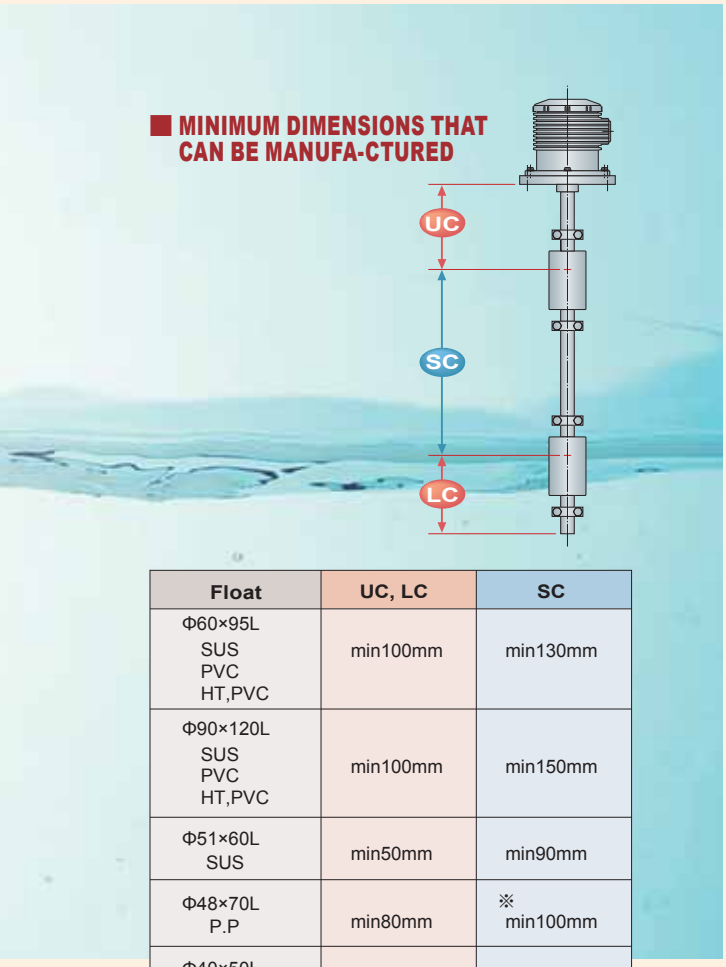


KFE-344□-□□□-94 KFE-346□-□□□-96



仕様 / 型式	KFE-3L0□-□□□-4L	KFE-3L0□-□□□-5L	KFE-344□-□□□-64 KFE-346□-□□□-66	KFE-344□-□□□-94 KFE-346□-□□□-96
Application	Small-caliber /General Liquid	Small-caliber /Low Density Liquid	Water, Oil /General Liquid	High Viscous /Low Density Liquid
Float Shape	φ40 × 50L	φ51 × 60L	φ60 × 95L	φ90 × 120L
Specific Gravity of Liquid	Over 0.63	Over 0.63	Over 0.92	Over 0.63
Heat-resistant	100° C	100° C	100° C	100° C
Withstand Pressure	490kPa	490kPa	490kPa	490kPa
Mounting Flange	Over JIS5K40A	Over JIS5K50A	Over JIS5K65A	Over JIS5K100A
Float Material	316L SS	316L SS	304SS / 316SS	304SS / 316SS
Stem Material	316L SS	316L SS	304SS / 316SS	304SS / 316SS
Stopper Material	316L SS	316L SS	304SS / 316SS	304SS / 316SS
Flange Material	316L SS	316L SS	304SS / 316SS	304SS / 316SS
Material of Terminal box	AC			
Cable Gland	G3/4 (Standard) *Be sure to use CSFX-22B manufactured by Shimada Electric Co., Ltd. when it comes to using the cable gland.			

■ MINIMUM DIMENSIONS THAT CAN BE MANUFA-CTURED



Float	UC, LC	SC
Φ60×95L SUS PVC HT,PVC	min100mm	min130mm
Φ90×120L SUS PVC HT,PVC	min100mm	min150mm
Φ51×60L SUS	min50mm	min90mm
Φ48×70L P.P	min80mm	※ min100mm
Φ40×50L SUS	min50mm	min80mm

*It is impossible to make the contact clearance 100mm in a row when you set more than 3 alarm-settings. The minimum should be 105mm.

Note) When clearance between two contacts is the minimum dimension (SC), the number of stopper between floats should be made one.

KFE-3000 Type

フロート	UC	SC	LC
Φ40×50L SUS304	min50mm	min80mm	min50mm
Φ51×60L SUS316L	min50mm	min90mm	min50mm
Φ60×95L SUS304 SUS316	min100mm	min130mm	min130mm
Φ90×120L SUS304 SUS316	min100mm	min150mm	min130mm

ClassNK Products are also available.

KF-302-1/2
KF-305-1/2

Detector : Up to 2m long
Mounting : JIS5K65A or over
Material of mounting portion : SS400/SUS304/SUS316
Material of wetted portion: SUS304 or SUS316

KF-322-1/2
KF-325-1/2

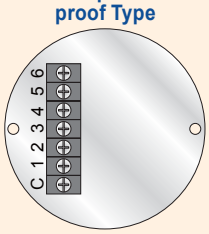
Detector : Up to 1.5m long
Mounting : R(G)2 screw or over, or JIS5K50A over
Material of mounting portion : SS400/SUS304/SUS316/SUS316
Material of wetted portion: SUS304/SUS316/SUS316L

KF-382-1/2
KF-385-1/2

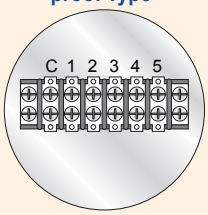
Detector : Up to 1.5m long
Mounting : R (G)1・1/2 screw or over, or JIS5K40A over
Material of mounting portion : SS400/SUS304/SUS316
Material of wetted portion: SUS304 or SUS316

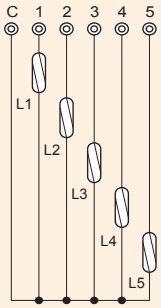
■ WIRING DIAGRAM FOR COMMON SPECIGFICATION

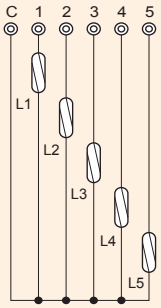
Nonexplosion-proof Type



Explosion-proof Type







■ INSTALLATION

- Stem should be installed vertically for liquid level.
- We recommend to apply a guide pipe (protection pipe) to exclude the affection by agitators, rippling or a rapid flow.
- In case flange mounting, gasket required.
- Lock each nut for the flange mounting, tighten firmly.
- Please avoid location prevent float moving.
- Avoid location where the fed product directly hit the instrument.

Please inform us of the following when inquiring and ordering

1. Measuring Material	[ ]	7. Process Connection	[ ]
2. Viscosity	[ ]	8. Number of Detection Point	[ ]
3. Corrosive	[ ]	9. Detection Point	[ ]
4. Foam	[ ]	10. Detection Direction	[ ]
5. Temperature	[ ]	11. Agitator	[YES · NO]
6. Pressure	[ ]	12. Explosion Proof	[YES · NO]

MULTI-POINT MEASUREMENT — With Terminal box

KS30

Material : Stainless steel

Heat-proof Temperature MAX.100℃

Process Connection	Flange JIS5K32A
	304SS
Float	Φ30*30
	304SS
Stopper	304SS
Liquid Density	Over 0.75
Max Switching Capacity	AC50VA DC50W

(Detection point 1 - 5)

KS30TH

Material : Stainless steel

Heat-proof Temperature MAX.200℃

Process Connection	Flange JIS5K50A
	304SS
Float	Φ51*40
	304SS
Stopper	304SS
Liquid Density	Over 0.65
Max Switching Capacity	220VAC 0.5A
	110VDC 0.3A

(Detection point 1 - 3)

KSPB

Material : Stainless steel

Heat-proof Temperature MAX.100℃

Process Connection	R1·1/4
	304SS equiv
Float	Φ30*30
	304SS
Stopper	304SS
Liquid Density	Over 0.75
Max Switching Capacity	AC50VA DC50W

(Detection point 1 - 5)

MULTI-POINT MEASUREMENT — Without Terminal box

KS3

Material : Stainless steel

Heat-proof Temperature MAX.100℃

Process Connection	M12*P1.25 Screw
	304SS
Float	Φ30*30
	304SS
Stopper	304SS
Liquid Density	Over 0.75
Max Switching Capacity	AC50VA DC50W

(Detection point 1 - 5)

KV3

Material: PVC

Heat-proof Temperature MAX.50℃

Process Connection	M20*P2.5 Screw
	PVC
Float	Φ44*25
	PVC
Stopper	PVC
Liquid Density	Over 0.8
Max Switching Capacity	AC50VA DC50W

(Detection point 1 - 3)

KP3

Material: Polypropylene

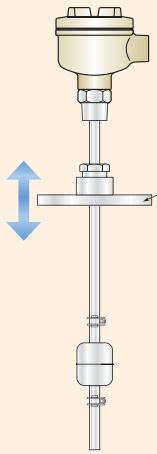
Heat-proof Temperature MAX.100℃

Process Connection	M14*P1.5 Screw
	PP
Float	Φ25*27
	PP
Stopper	PTFE
Liquid Density	Over 0.75
Max Switching Capacity	AC50VA DC50W

(Detection point 1 - 3)

Option

■Slide Flange

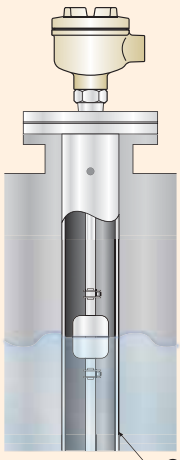


Detecting Point Adjustable

Slide Flange

Material: SUS, PVC, HTPVC
ANSI, JPI Available

■Guide Pipe

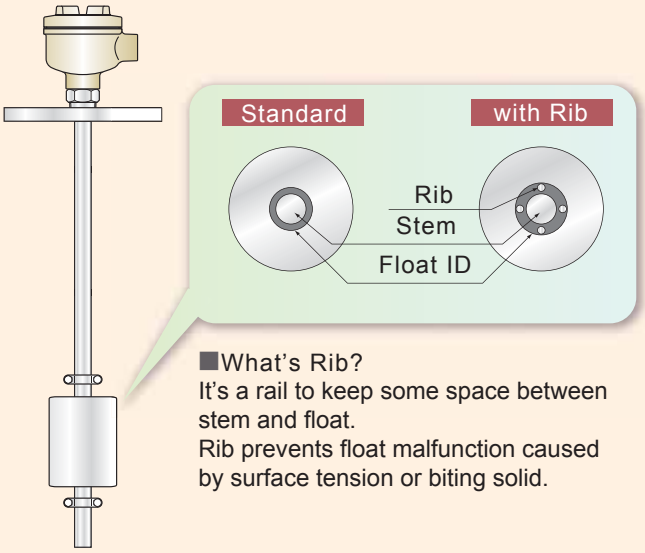


Prevent float from chattering by rising wave on liquid surface.

Material: SUS, PVC, HTPVC
Various Process
Connection Available

Special Model

■Float with Rib



■What's Rib?
It's a rail to keep some space between stem and float.
Rib prevents float malfunction caused by surface tension or biting solid.

Float with Rib is available for

- ◆ KF-31□
- ◆ KF-34□N
- ◆ KF-37□N

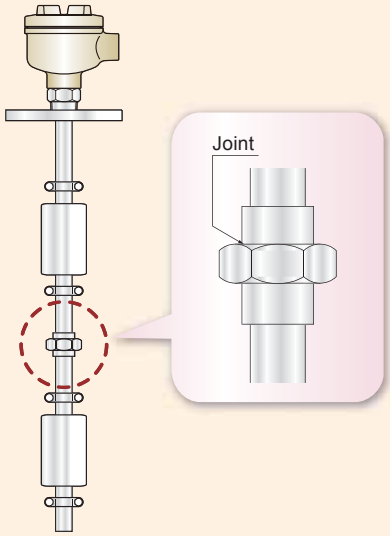
Recommended for

- ●Liquid with High Viscosity
- ●Liquid with Tiny solids
- ●Liquid with Bubbles

Application

- ●Oil
- ●Japanese SAKE
- ●Heavy Oil
- ●Liquid Waste with Scums
- ●Waste Water etc.

■Joint Model



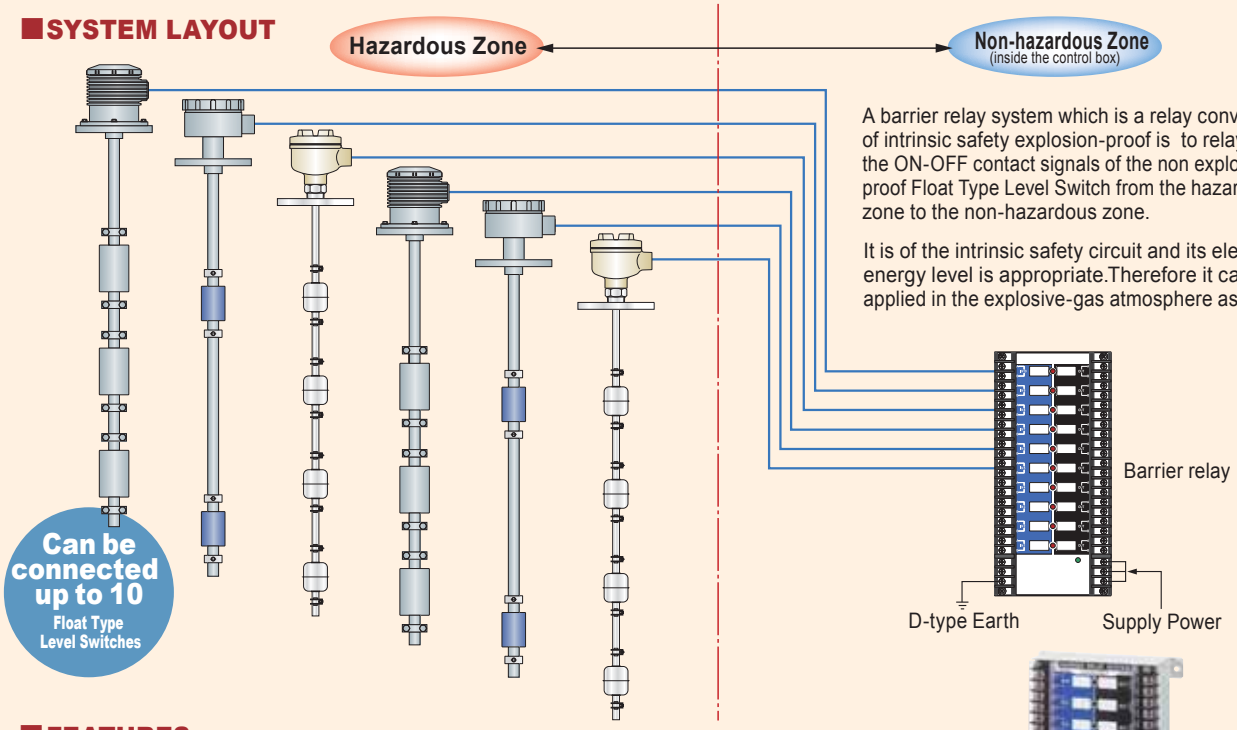
■Advantage
- Dividable at user's convenient length
- Re-buildable at site
- Material: SUS, PVC, HTPVC
- O-ring sealing on joint part prevents liquid entry

Recommended for

- ●No space between roof and tank roof (Indoor application)
- ●Total insertion length over 4m

APPLYING EXPLOSION-PROOF ABILITY WITH BARRIER RELAY SYSTEM

SYSTEM LAYOUT



A barrier relay system which is a relay converter of intrinsic safety explosion-proof is to relay out the ON-OFF contact signals of the non explosion-proof Float Type Level Switch from the hazardous zone to the non-hazardous zone.

It is of the intrinsic safety circuit and its electric energy level is appropriate.Therefore it can be applied in the explosive-gas atmosphere as well.

FEATURES

- No complicated wiring for withstand-pressure explosion-proof is required. In particular, you can save expenses concerning wiring works when you connect a number of Float Type Level Switches.
- If you have some channels to spare, you can have them used for the contact ON/OFF parts including a limit switch other than Float Type Level Switch.
- Also available is a barrier relay system which can apply 3nG5 usable for all kinds of gases (3000-3R series).

SPECIFICATION LIST

Model \ Specification	Target gas	Number of channels	Power consumption	Common connection
3001-1R	2G4	1	2.8VA	Can be connected to COMMON up to 10 channels. Connection to COMMON is negative (−).
3002-1R		2	3.2VA	
3003-1R		3	3.5VA	
3005-1R		5	4.0VA	
3010-1R		10	5.0VA	
3001-2R	3aG4	1	2.8VA	Can be connected to COMMON up to 5 channels. Connection to COMMON is negative (−).
3002-2R		2	3.2VA	
3003-2R		3	3.5VA	
3005-2R		5	4.0VA	
3010-2R		10	5.4VA	

COMMON SPECIFICATION

Explosion-proof Construction	Intrinsic Safety Explosion-proof
Circuit located at the Intrinsic-safety-side	15 VDC 15mA
Output Contact	200 VDC / 24VDC 3A
Supply Voltage	100VAC, 110V / 200V, 220V ±10% 50/60Hz
Time	Response time /5ms Operation round-trip time/10ms
Indication Light	Power Indicating- light (Green LED)
	Operation Indicating-light (Red LED) x each channel
Connection	Terminal block, screw: M3mm
Material	Case: SPC Panel: Acrylic

Available are 3000-3R series. * Independent COMMON contact only. 3000-3R, being designed for 3nG5 as target gases, can be applicable to all kinds of gases.

Line of business

- Rotary Paddle Type Level Switch
- Vibration Type Level Switch
- Swing Type Level Switch
- Acoustic Level Switch
- Capacitance Type Level Switch
- Capacitive Proximity Sensor
- Capacitance Type Level Indicator
- Diaphragm Type Level Switch
- Tilt Switch
- Leak Type Level Switch
- Microwave Type Switch
- Sounding Bob Type Level Indicator
- Flow Switch
- Conductance Type Level Switch
- Float Switch
- Float Type Level Indicator
- Ultrasonic Type Level Indicator
- Equipments For Conveyor Lines
- Dust Monitor System
- Zirconia Oxygen Analyzer
- Laser Type Level Indicator
- RADAR Type Level Indicator
- On-line Sensors for Accurate Liquid Analysis
- Ultrasonic Flow meter

*Please be sure to read USER'S GUIDE, Installation & Operation Instructions before using the instrument.
*The specifications herein may be subject to change without advance notice.

All-round Manufacturer of Level Controllers for Powder, Granules and Liquid

KANSAI Automation Co.,Ltd.

Headquarters :
2-14, Togano-cho, Kita-ku, Osaka 530-0056, Japan
TEL. 81-6-6312-2071 FAX. 81-6-6314-0848
e-mail:infoe@kansai-automation.co.jp

http://www.kansai-automation.co.jp

Tokyo Branch : 1-29-6, Hamamatsu-cho, Minato-ku. Tokyo 105-0013, Japan
TEL. 81-3-5777-6931 FAX. 81-3-5777-6933

Nagoya Office : 3-31-27, Uchiyama, Chigusa-ku, Nagoya 464-0075, Japan
TEL. 81-52-741-2432 FAX. 81-52-741-1588

Kyushu Office : 1-2-39, Asano, Kokura Kita-ku, Kitakyushu 802-0001, Japan
TEL. 81-93-511-4741 FAX. 81-93-511-4580

Agent

NIHON ENGINEERING SEA SDN. BHD.
CONSULTANCY & TRAINING 202101000847 (1401145-K)
No. 72, Jalan Keluli AN7/AN
Pusat Perniagaan Bukit Raja, Seksyen 7
40000 Shah Alam, Selangor
P: +6012-322 1566 W: https://www.nihon-e.com
E: engineering@nihon-e.com