

KVK/KVA/KVS/KVF **SERIES** **VIBRATION TYPE** **LEVEL SWITCH**



**RELIABLY DETECT ANY MATERIALS WHOSE SPECIFIC
CONDUCTIVITY OR ELECTRICAL PROPERTIES MAY BE VARIED!!**



VIBRATION TYPE LEVEL SWITCH

Its capability of contamination resistance has remarkably been upgraded in such a way that, because vibrating forks are now replaced with a straight rod, the surface area is changed to smaller. This model is so unique that it may detect the low-density powders over the specific gravity of 0.03.

■ FEATURES

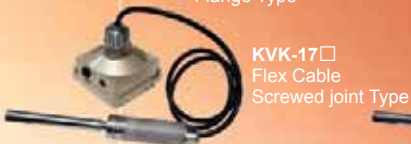
- It can detect the substance having the physical variations of such as dielectric constant and moisture percentage.
- It consists of a single detection probe and is uniformly structured of stainless steel, which provide the following features; Low Contamination & Withstand High Pressure.
- It is so highly sensitive that it may detect the substance having over the specific gravity of 0.03.

■ PRINCIPLE OF OPERATION

When a substance touches on the rod vibrating at an inherent frequency due to vibration device, the amplitude of the rod is reduced, which is electrically detected to be relay-output.

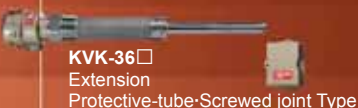
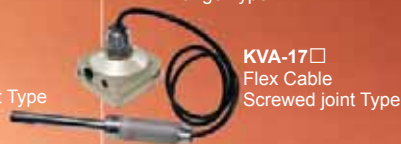
Model **KVK**

High Sensitivity Type



Model **KVA**

Withstand Load Type

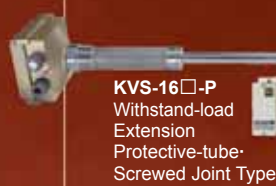


Model **KVS**

High Sensitivity Withstand Load



Intrinsic Safety
i2G4



Model **KVF**

Flat Type



■ APPLICATIONS

Fine Powder/Granules,
Submerged Solids, Powdered
Coffee, Talc, Carbon, Foam
Polystyrene, Perlite, Flour,
Powdered Milk, Pharmaceutical
Powder, Toner, Colorant,
Pulverized Film Powder, etc.

VIBRATION TYPE LEVEL SWITCH

STANDARD SPECIFICATION

Power Source : 105/210VAC $\pm 10\%$ 50/60Hz
 Sensitivity : over 0.03 Specific Gravity
 Frequency : about 165Hz
 Output contact : SPDT 250VAC 10A
 30VDC 10A(Resistance load)
 Delay timer : about 10sec max. variable
 AMP temperature : $-20 \sim +60^{\circ}\text{C}$ (No condensation/
 no freezing)
 Detector : $-20 \sim +80^{\circ}\text{C}$ (No condensation/
 temperature no freezing
 $-20 \sim +150^{\circ}\text{C}$ (Separate type)
 Detector pressure : 980KPa (10kgf/cm²)
 Detector material : 304SS
 Mounting : R1 · 1/2 or flange over 50A

*DC Power Specification (Option)
 [24VDC $\pm 1\text{V}$, Ripple(p-p) below 1%, negative earth]



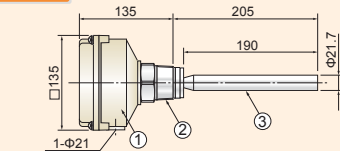
Model KVK

- KVK is a High Sensitivity Type detecting low-density powders (over 0.03 Specific Gravity)
- In the pursuit of turning-fork vibration accuracy, it becomes contamination-resistant.

HIGHLY SENSITIVE TO DETECT POWDERS OVER 0.03 SPECIFIC GRAVITY



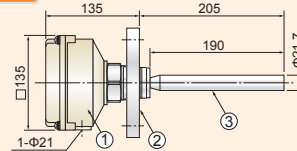
Integrated Model KVK-111 Screwed joint Type



KVK Standard

No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Rod	304SS

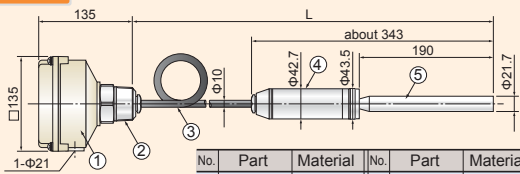
Integrated Model KVK-121 Flange Type



KVK Standard

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Rod	304SS

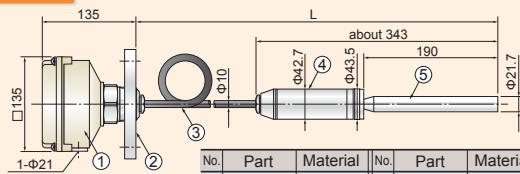
Integrated Model KVK-17 Flexible-cable, Screwed joint Type



Vertical mounting for Upper - limit detection
 "L" is 6000mm long(max).

No.	Part	Material	No.	Part	Material
1	Case	ADC	4	Prot-tube	304SS
2	Screw	304SS	5	Rod	304SS
3	Cable	Polyurethane			

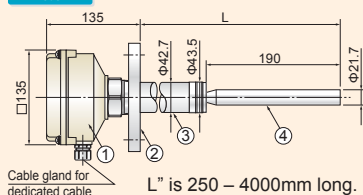
Integrated Model KVK-18 Flexible-cable, Flange Type



Vertical mounting for Upper - limit detection
 "L" is 6000mm long(max).

No.	Part	Material	No.	Part	Material
1	Case	ADC	4	Prot-tube	304SS
2	Flange	304SS	5	Rod	304SS
3	Cable	Polyurethane			

Separate Model KVK-23 Extension Protective-tube · Flange Type



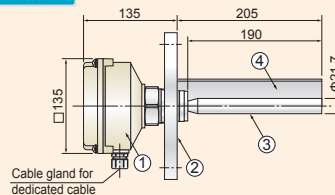
Cable gland for dedicated cable

"L" is 250 – 4000mm long.

Accomodate any length

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Rod	304SS

Separate Model KVK-241 Std Probe · Protective Cover, Flange Type

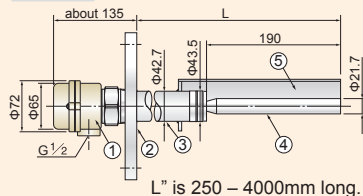


Cable gland for dedicated cable

Can protect the vibrating rod and prevent damage.

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Protective cover	304SS

Compact & Separate Model KVK-35 Extension Protective-tube · Protective cover, Flange Type



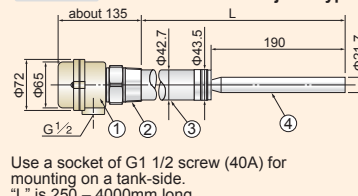
G1/2

"L" is 250 – 4000mm long.

Can protect the vibrating rod and prevent damage.

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Rod	304SS
5	Protective cover	304SS

Compact & Separate Model KVK-36 Extension Protective-tube · Screwed joint Type



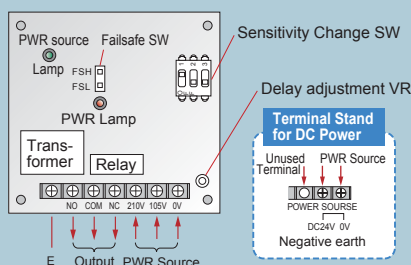
Use a socket of G1/2 screw (40A) for mounting on a tank-side.
 "L" is 250 – 4000mm long.

Accomodate any length

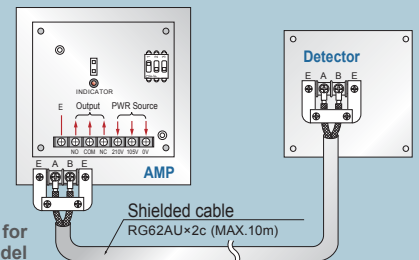
No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Protective-tube	304SS
4	Rod	304SS

KVK MODEL
 KVA MODEL

Wiring for Integrated Model



Wiring for Separate Model





Model KVA

- Withstand load Type that can withstand the 500N load by powders
- It can come up with the stable vibration of turning fork without changing the outer diameter of the vibrating rod.
- It can detect powders over 0.1 in the specific gravity.

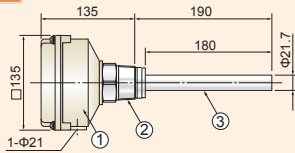
WITHSTAND LOAD TYPE THAT CAN WITHSTAND THE LOAD UP TO 500N BY POWDERS

STANDARD SPECIFICATION

- Power Source : 105/210VAC $\pm 10\%$ 50/60Hz
- Sensitivity : over 0.1 Specific Gravity
- Frequency : about 280Hz
- Output contact : SPDT 250VAC 10A
30VDC 10A(Resistance load)
- Delay timer : about 10sec max. variable
- AMP temperature : $-20 \sim +60^\circ\text{C}$ (No condensation/ no freezing)
- Detector : $-20 \sim +80^\circ\text{C}$ (No condensation/ temperature no freezing)
 $-20 \sim +150^\circ\text{C}$ (Separate type)
- Detector pressure : 980KPa (10kgf/cm²)
- Detector material : 304SS
- Mounting : R1 · 1/2 or flange over 50A
- Withstand load : 500N

*DC Power Specification (Option)
[24VDC $\pm 1\%$, Ripple (p-p) below 1%, negative earth]

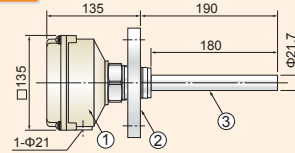
Integrated Model KVA-111 Screwed joint Type



KVK Standard

No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Rod	304SS

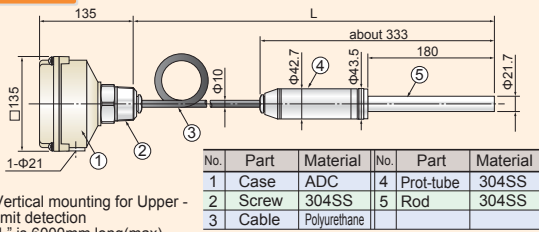
Integrated Model KVA-121 Flange Type



KVK Standard

No.	Part	Material
	Case	ADC
	Flange	304SS
	Rod	304SS

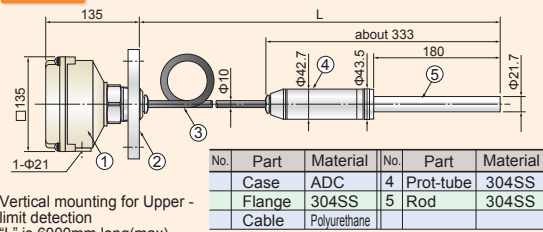
Integrated Model KVA-17 Flexible-cable, Screwed joint Type



No.	Part	Material	No.	Part	Material
1	Case	ADC	4	Prot-tube	304SS
2	Screw	304SS	5	Rod	304SS
3	Cable	Polyurethane			

Vertical mounting for Upper - limit detection
"L" is 6000mm long(max).

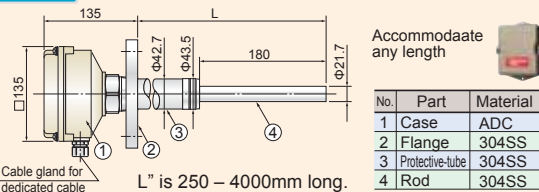
Integrated Model KVA-18 Flexible-cable, Flange Type



No.	Part	Material	No.	Part	Material
	Case	ADC	4	Prot-tube	304SS
	Flange	304SS	5	Rod	304SS
	Cable	Polyurethane			

Vertical mounting for Upper - limit detection
"L" is 6000mm long(max).

Separate Model KVA-23 Extension Protective-tube · Flange Type



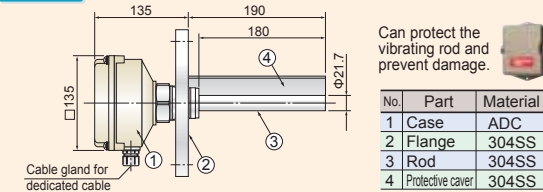
Accommodate any length

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Rod	304SS

Cable gland for dedicated cable

"L" is 250 – 4000mm long.

Separate Model KVA-241 Std Probe · Protective Cover, Flange Type

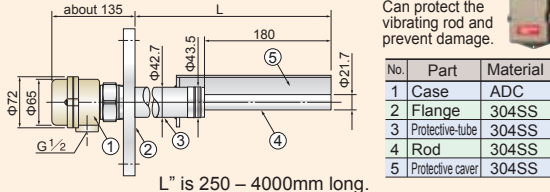


Can protect the vibrating rod and prevent damage.

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Rod	304SS
4	Protective cover	304SS

Cable gland for dedicated cable

Compact & Separate Model KVA-35 Extension Protective-tube · Protective cover, Flange Type

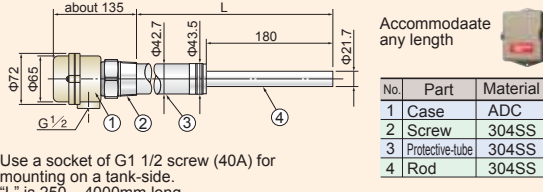


Can protect the vibrating rod and prevent damage.

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Rod	304SS
5	Protective cover	304SS

"L" is 250 – 4000mm long.

Compact & Separate Model KVA-36 Extension Protective-tube · Screwed joint Type

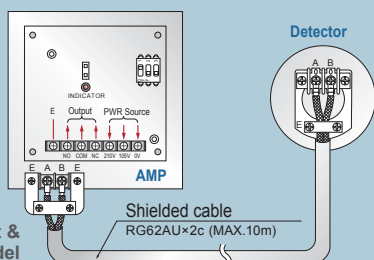


Accommodate any length

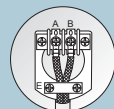
No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Protective-tube	304SS
4	Rod	304SS

Use a socket of G1 1/2 screw (40A) for mounting on a tank-side.
"L" is 250 – 4000mm long.

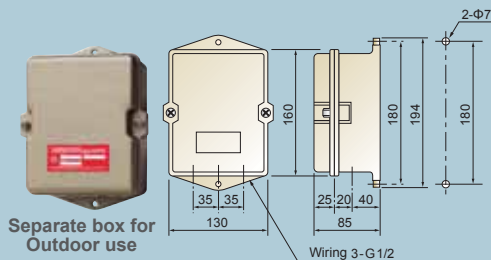
Wiring for Compact & Separate Model



Detector



Separate box for Outdoor use



Wiring 3-G1/2

VIBRATION TYPE LEVEL SWITCH

INTRINSIC SAFETY EXPLOSION-PROOF STRUCTURE

•Both types of High Sensitivity(Ctype) and Withstand Load (Ptype)are available.

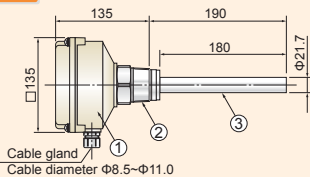
Intrinsic Safety Explosion Proof Structure
i2G4
Type Certification
No.T36593

Model KVS

STANDARD SPECIFICATION

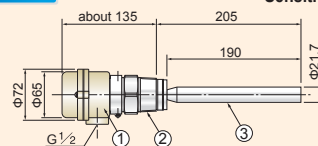
Power Source : 105/210VAC ±10% 50/60Hz
Sensitivity : Specific Gravity over 0.03 (C Type) over 0.1 (P Type)
Frequency : about 165Hz (C Type) about 280Hz (P Type)
Output contact : SPDT 100VA 200VAC max. 2A max.
AMP temperature : -20~+60°C
 (No condensation/ no freezing)
Detector temperature : -20~+80°C
 (No condensation / No freezing
 -20~+120°C (Separate model)
Detector pressure : 980KPa (10kgf/cm²)
Detector material : SUS304
Mounting : R1 : 1/2 or flange over 50A
Explosion-proof : Intrinsic Safety Explosion-proof i2G4
 NIIS No. T36593

Integrated Model **KVS-111-P** Withstand Load · Screwed joint Type



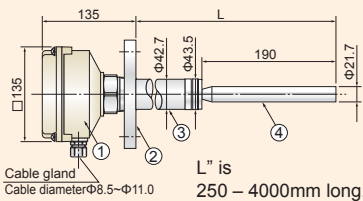
No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Rod	304SS

Compact & Separate Model **KVS-311-C** Compact & Separate Model · High Sensitivity · Screwed joint Type



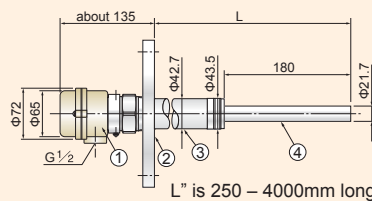
No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Rod	304SS

Integrated Model **KVS-13-C** High Sensitivity · Extension Protective-tube · Flange Type



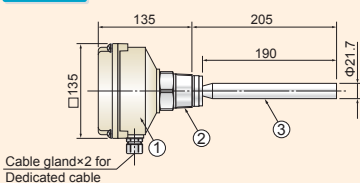
No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Rod	304SS

Compact & Separate Model **KVS-331-P** Compact & Separate Model · Extension Protective-tube · Flange Type



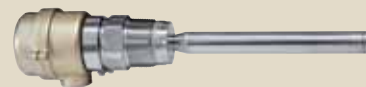
No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Rod	304SS

Separate Model **KVS-211-C** High Sensitivity · Screwed joint Type

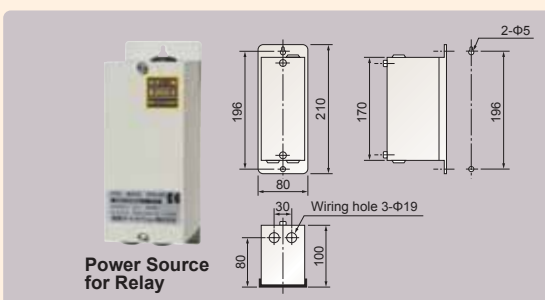


No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Rod	304SS

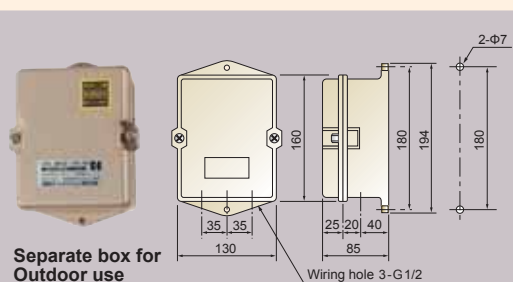
•The compact & Separate model is designed to make the sensor housing smaller.



*As for the sensor separate model, the length of dedicated cable between sensor & amplifier is 4m at the maximum.



Power Source for Relay



Separate box for Outdoor use



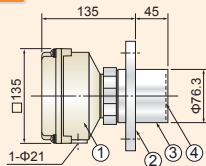
Model KVF

HERE WE HAVE ONE OF THE FEW FLAT-TYPE VIBRATION MODELS !!

• PRINCIPLE OF OPERATION

A built-in electromagnet vibrates a diaphragm and has it touch on an object to be measured, thus reducing the vibration amplitude, which is electrically detected and is relay-output.

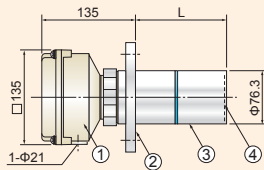
Integrated Model **KVF-121** Flat Type



Standard KVF model for lower limit

No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Oscillatory board	304SS

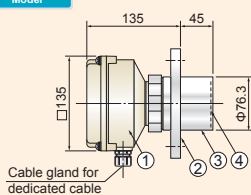
Integrated Model **KVF-132** Extension Protective-tube · Flat Type



Can accommodate a certain limit of length.

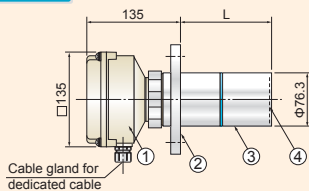
No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Oscillatory board	304SS

Separate Model **KVF-221** Flat Type



No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Oscillatory board	304SS

Separate Model **KVF-232** Extension Protective-tube · Flat Type



Can accommodate a certain limit of length.

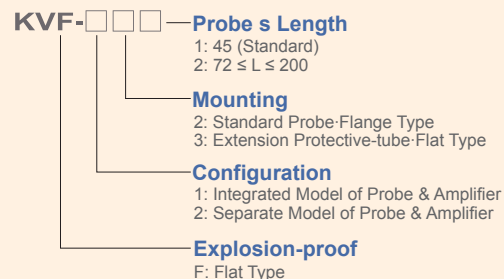
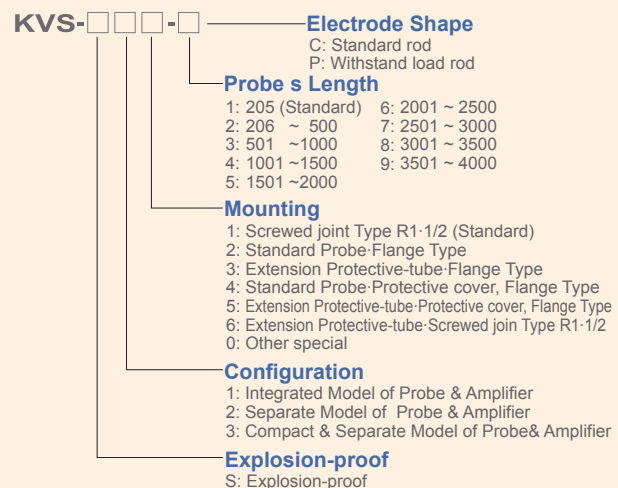
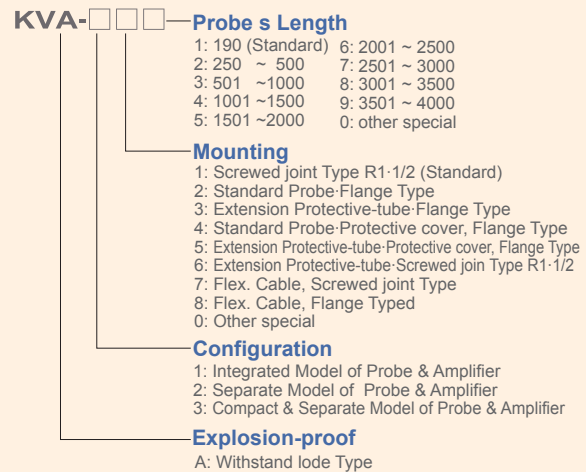
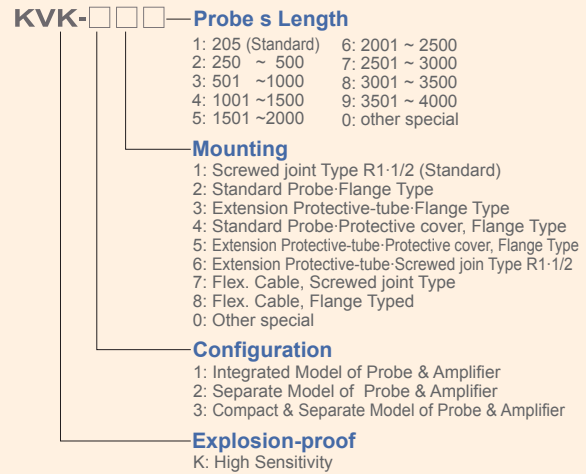


No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Oscillatory board	304SS

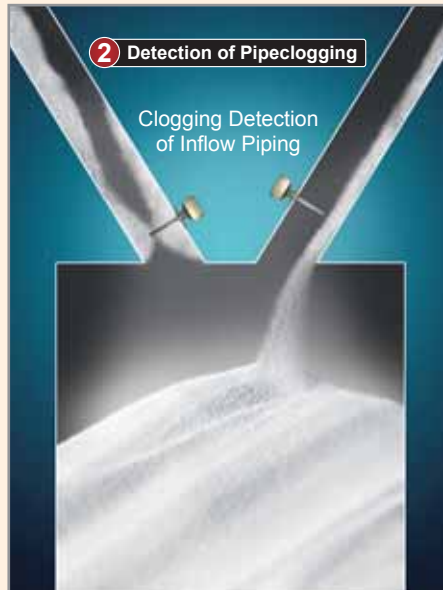
STANDARD SPECIFICATION

- Power Source : 105/210VAC ±10%
- Sensitivity : Specific Gravity over 0.3
- Frequency : about 500Hz
- Output contact : SPDT 250VAC 10A (Resistance load)
- Delay timer : about 10 sec. max. variable
- AMP temperature : -20~+60°C (No condensation/ no freezing)
- Detector temperature : -20~+80°C (No condensation/ no freezing)
- Detector pressure : 49KPa (0.5kgf/cm²)
- Detector material : SUS304
- Mounting : Flange over JIS5K65A

DESIGNATION OF MODEL

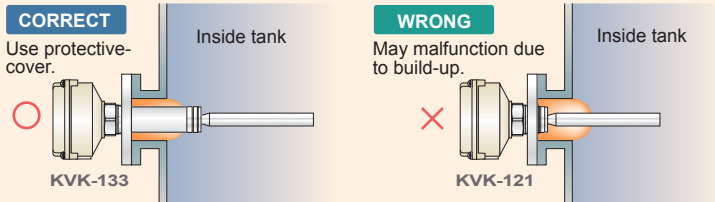


APPLICATION

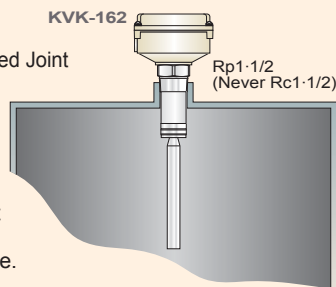


MOUNTING INSTRUCTIONS

1. Fix the unit in such a way that the vibrating rod may protrude into the tank when it is equipped with a mounting stage.

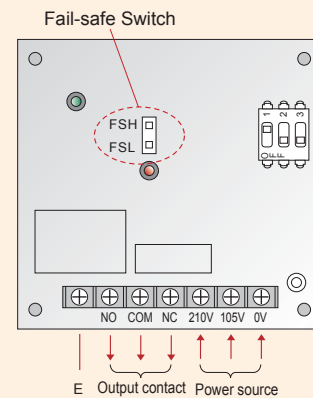


2. As for Extension Protective-tube/ Screwed Joint Type, use a socket of Rp1 1/2 thread (40A) for mounting on a tank-side.
*Rc1 1/2 thread can not be used.



3. Use 3S at a minimum when you mount with ferrules.
The use of 2S will be subject to the type.

Loaded with Fail-safe function



FOR LOEWR LIMIT

CONNECT TO NO-COM & SET UP [FSL].

FOR UPPER LIMIT

CONNECT TO NC-COM & SET UP [FSL].

*KVK, KVA & KVF have the above function.

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 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.

Nuclear Power Generation to Rice Milling
All-round Manufacturer of Level Controllers for Powder, Granules and Liquid

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Design, development, and manufacture of level measuring sensors

Agent