

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



KVK-111
Screwed Joint Type
R1/2 (Std)



KVK-121
Std Probe-Flange Type



KVK-23 □
Extension
Protective-tube-
Flange Type



KVK-241
Std Probe-
Protective cover-
Flange Type



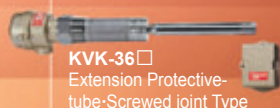
KVK-25 □
Extension
Protective-tube-
Protective-cover-
Flange Type



KVK-17 □
Flex Cable
Screwed joint Type



KVK-18 □
Flex Cable
Flange Type



KVK-36 □
Extension Protective-
tube-Screwed joint Type

Model **KVA**

Withstand Load Type



KVA-111
Screwed Joint Type
R1-1/2 (Std)



KVA-121
Std Probe-
Flange Type



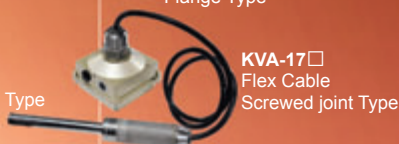
KVA-23 □
Extension
Protective-tube-
Flange Type



KVA-241
Std Probe-Protective
cover, Flange Type



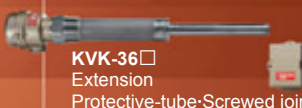
KVA-25 □
Extension
Protective-tube-
Protective-cover-
Flange Type



KVA-17 □
Flex Cable
Screwed joint Type



KVA-18 □
Flex Cable
Flange Type



KVA-36 □
Extension
Protective-tube-Screwed joint Type

Model **KVS**

High Sensitivity

Withstand Load



Intrinsic Safety
i2G4



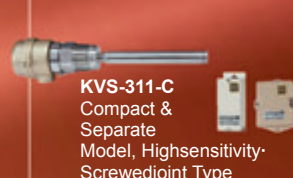
KVS-16 □-P
Withstand-load
Extension
Protective-tube-
Screwed Joint Type



KVS-13 □-C
High Sensitivity-
Extension
Protective-tube-
Flange Type



KVS-211-C
Separate Model,
High sensitivity-
Screwed joint Type



KVS-311-C
Compact &
Separate
Model, Highsensitivity-
Screwedjoint Type



KVS-33 □-P
Compact &
Separate
Model, Extension
Protective-tube-
Flange Type

Model **KVF**

Flat Type



KVF-121
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.

■ 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 to $+60^{\circ}\text{C}$
 (No condensation/ no freezing)
 Detector temperature : -20 to $+80^{\circ}\text{C}$
 (No condensation/ no freezing
 -20 to $+150^{\circ}\text{C}$ (Separate type)
 Detector pressure : 980kPa (10kgf/cm 2)
 Detector material : 304SS
 Mounting : R1 $\cdot 1/2$ or flange over 50A

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



Model KVK

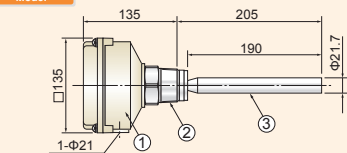
•KVK is a High Sensitivity Type detecting low-density powders (over 0.03 Specific Gravity)

•In the pursuit of turning-fork vibration accuracy, it becomes contamination-resistant.

Highly sensitive to detect powders over 0.03 specific gravity



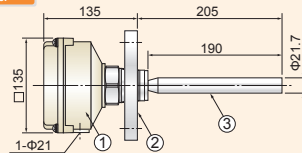
Integrated Model **KVK-111** Screwed joint Type



KVK Standard

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

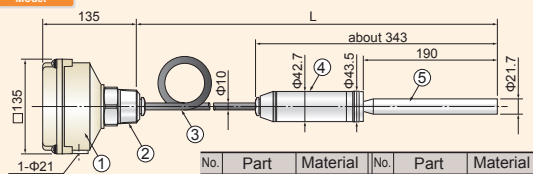
Integrated Model **KVK-121** Flange Type



KVK Standard

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

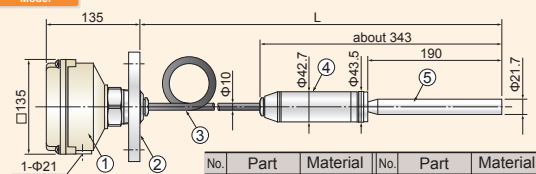
Integrated Model **KVK-17** Flexible-cable, Screwed joint Type



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			

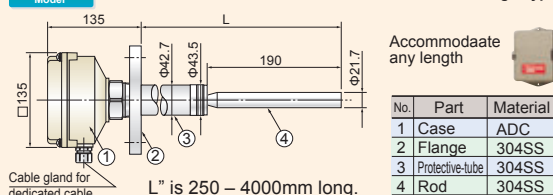
Integrated Model **KVK-18** Flexible-cable, Flange Type



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



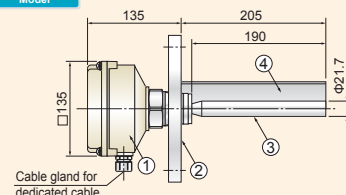
Cable gland for dedicated cable

"L" is 250 – 4000mm long.

Accommodate 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

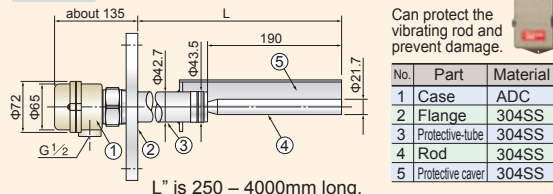


Cable gland for dedicated cable

Can protect the vibrating rod and prevent damage.

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

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

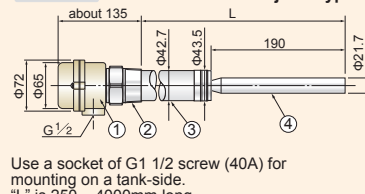


"L" is 250 – 4000mm long.

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



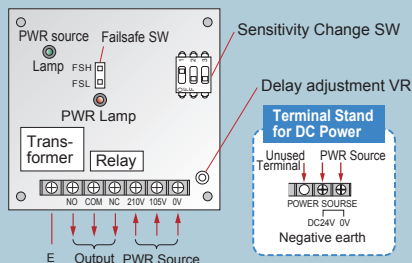
Use a socket of G1 1/2 screw (40A) for mounting on a tank-side.
 "L" is 250 – 4000mm long.

Accommodate any length

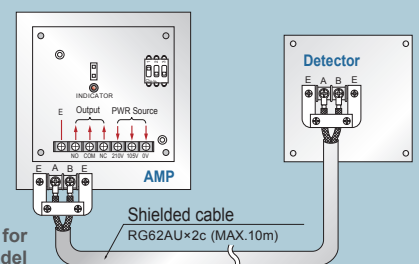
No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Protective-tube	304SS
4	Rod	304SS

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.

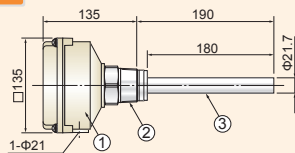
Withstand load type that can withstand the load up to 500n by powders

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 to $+60^{\circ}\text{C}$
 (No condensation/ no freezing)
 Detector temperature : -20 to $+80^{\circ}\text{C}$
 (No condensation/ no freezing
 -20 to $+150^{\circ}\text{C}$ (Separate type)
 Detector pressure : 980kPa (10kgf/cm 2)
 Detector material : 304SS
 Mounting : R1 · 1/2 or flange over 50A
 Withstand load : 500N

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

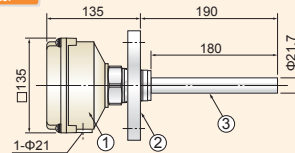
Integrated Model KVA-111 Screwed joint Type



KVK Standard

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

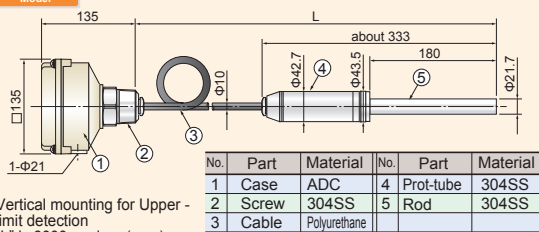
Integrated Model KVA-121 Flange Type



KVK Standard

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

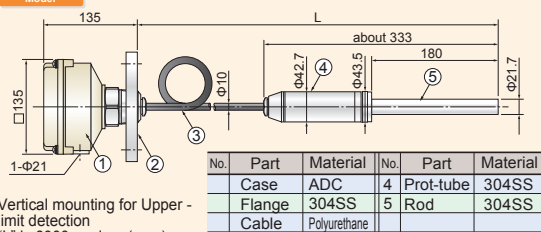
Integrated Model KVA-17 Flexible-cable, Screwed joint Type



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).

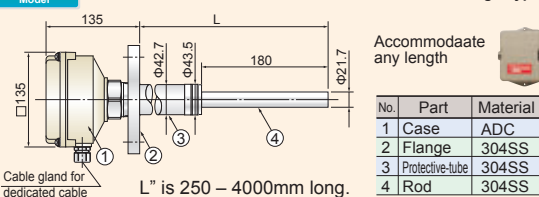
Integrated Model KVA-18 Flexible-cable, Flange Type



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

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

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

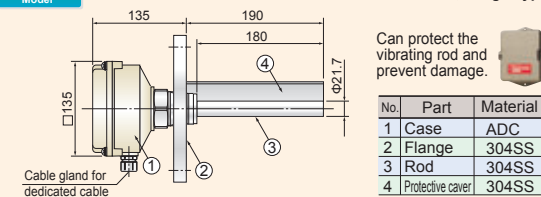


Accommodate any length

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

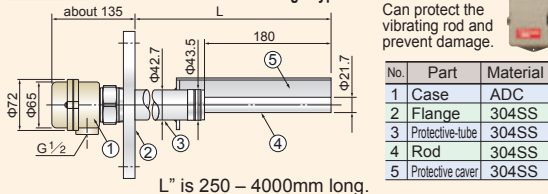


Can protect the vibrating rod and prevent damage.

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

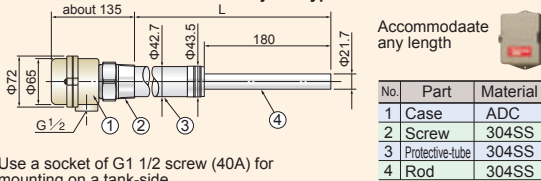


Can protect the vibrating rod and prevent damage.

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

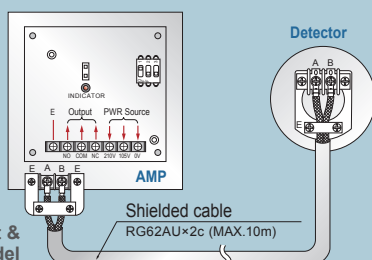


Accommodate any length

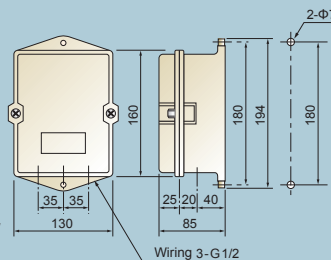
No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Protective-tube	304SS
4	Rod	304SS

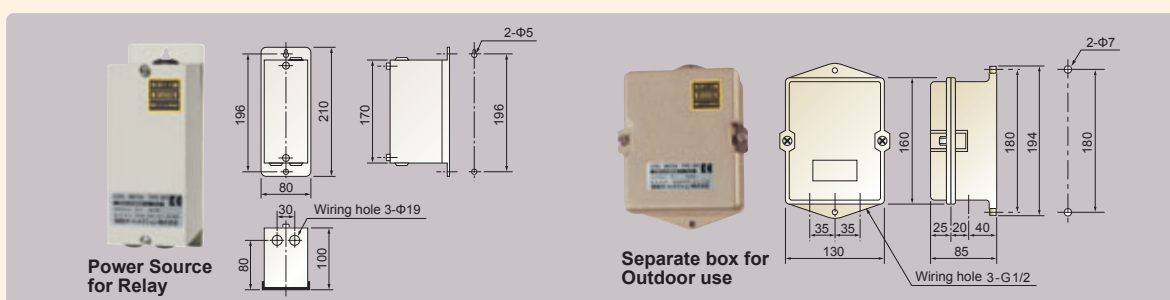
Use a socket of G1 1/2 screw (40A) for mounting on a tank-side.
 "L" is 250 – 4000mm long.

Wiring for Compact & Separate Model



Separate box for Outdoor use







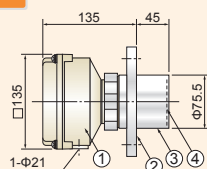
Model KVF

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.

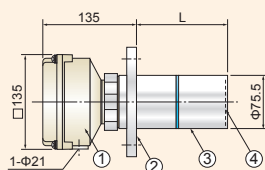
Integrated Model KVF-121 Flat Type



Standard KVF model for lower limit

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

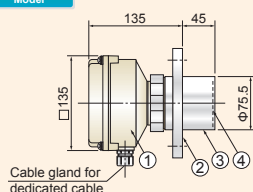
Integrated Model KVF-132 Extension Protective-tube · Flat Type



Can accommodate a certain limit of length.

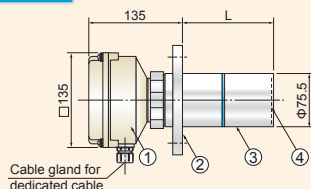
No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Oscillatory board	304SS

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 to +60°C (No condensation/ no freezing)

Detector temperature : -20 to +80°C (No condensation/ no freezing)

Detector pressure : 49kPa (0.5kgf/cm²)

Detector material : 304SS

Mounting : Flange over JIS5K65A

Designation of Model

KVK-□□□—Probe's Length

- | | |
|-------------------|------------------|
| 1: 205 (Standard) | 6: 2001 – 2500 |
| 2: 250 – 500 | 7: 2501 – 3000 |
| 3: 501 – 1000 | 8: 3001 – 3500 |
| 4: 1001 – 1500 | 9: 3501 – 4000 |
| 5: 1501 – 2000 | 0: other special |

Mounting

- 1: Screwed joint Type R1-1/2 (Standard)
- 2: Standard Probe-Flange Type
- 3: Extension Protective-tube-Flange Type
- 4: Standard Probe-Protective cover, Flange Type
- 5: Extension Protective-tube-Protective cover, Flange Type
- 6: Extension Protective-tube-Screwed joint Type R1-1/2
- 7: Flex. Cable, Screwed joint Type
- 8: Flex. Cable, Flange Typed
- 0: Other special

Configuration

- 1: Integrated Model of Probe & Amplifier
- 2: Separate Model of Probe & Amplifier
- 3: Compact & Separate Model of Probe & Amplifier

Explosion-proof

K: High Sensitivity

KVA-□□□—Probe's Length

- | | |
|-------------------|------------------|
| 1: 190 (Standard) | 6: 2001 – 2500 |
| 2: 250 – 500 | 7: 2501 – 3000 |
| 3: 501 – 1000 | 8: 3001 – 3500 |
| 4: 1001 – 1500 | 9: 3501 – 4000 |
| 5: 1501 – 2000 | 0: other special |

Mounting

- 1: Screwed joint Type R1-1/2 (Standard)
- 2: Standard Probe-Flange Type
- 3: Extension Protective-tube-Flange Type
- 4: Standard Probe-Protective cover, Flange Type
- 5: Extension Protective-tube-Protective cover, Flange Type
- 6: Extension Protective-tube-Screwed joint Type R1-1/2
- 7: Flex. Cable, Screwed joint Type
- 8: Flex. Cable, Flange Typed
- 0: Other special

Configuration

- 1: Integrated Model of Probe & Amplifier
- 2: Separate Model of Probe & Amplifier
- 3: Compact & Separate Model of Probe & Amplifier

Explosion-proof

A: Withstand Iode Type

KVS-□□□—Electrode Shape

- C: Standard rod
P: Withstand load rod

Probe's Length

- | | |
|-------------------|----------------|
| 1: 205 (Standard) | 6: 2001 – 2500 |
| 2: 206 – 500 | 7: 2501 – 3000 |
| 3: 501 – 1000 | 8: 3001 – 3500 |
| 4: 1001 – 1500 | 9: 3501 – 4000 |
| 5: 1501 – 2000 | |

Mounting

- 1: Screwed joint Type R1-1/2 (Standard)
- 2: Standard Probe-Flange Type
- 3: Extension Protective-tube-Flange Type
- 4: Standard Probe-Protective cover, Flange Type
- 5: Extension Protective-tube-Protective cover, Flange Type
- 6: Extension Protective-tube-Screwed joint Type R1-1/2
- 0: Other special

Configuration

- 1: Integrated Model of Probe & Amplifier
- 2: Separate Model of Probe & Amplifier
- 3: Compact & Separate Model of Probe& Amplifier

Explosion-proof

S: Explosion-proof

KVF-□□□—Probe's Length

- | |
|------------------|
| 1: 45 (Standard) |
| 2: 72 ≤ L ≤ 200 |

Mounting

- 2: Standard Probe-Flange Type
- 3: Extension Protective-tube-Flat Type

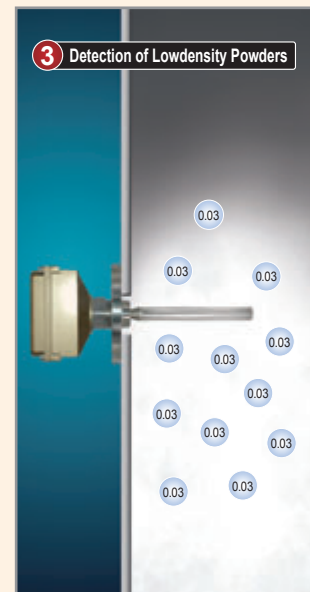
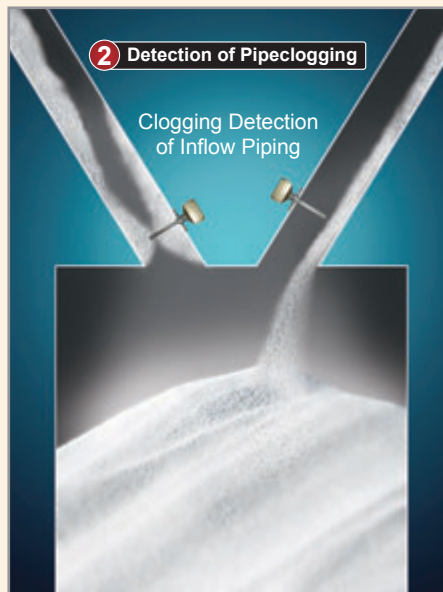
Configuration

- 1: Integrated Model of Probe & Amplifier
- 2: Separate Model of Probe & Amplifier

Explosion-proof

F: Flat Type

Application

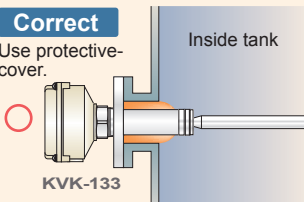


Mounting Instructions

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.

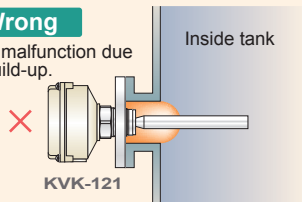
Correct

Use protective-cover.



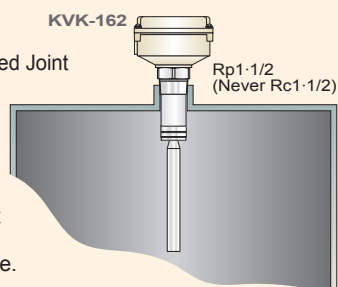
Wrong

May malfunction due to build-up.



2. As for Extension Protective-tube/ Screwed Joint Type, use a socket of Rp1 1/2 thread (40A) for mounting on a tank-side.

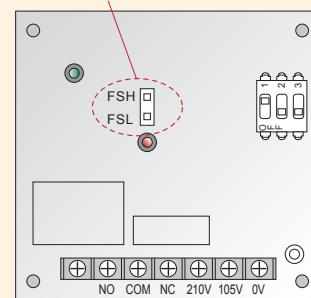
*Rc1-1/2 thread can not be used.



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

Fail-safe Switch



E Output contact Power source

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 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.

Nuclear Power Generation to Rice Milling

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

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Your Automation Partner



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