

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



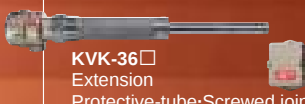
KVA-25
Extension
Protective-tube-
Protective-cover-
Flange Type



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



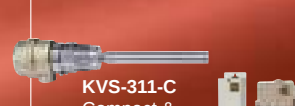
KVS-16□-P
Withstand-load
Extension
Protective-tube-
Screwed Joint Type



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 : $-20 \sim +60^{\circ}\text{C}$ (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 : 1MPa (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]



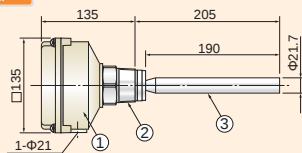
Model KVK

- 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



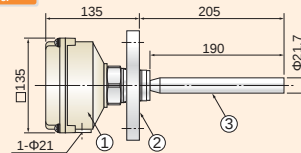
Integrated Model KVK-111 Screwed joint Type



KVK Standard

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

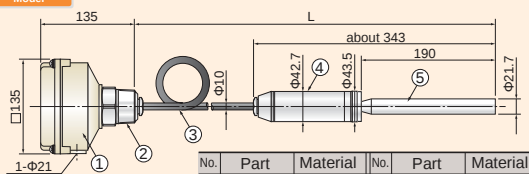
Integrated Model KVK-121 Flange Type



KVK Standard

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

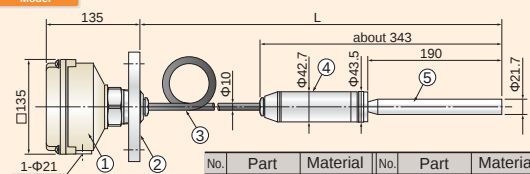
Integrated Model KVK-17 Flexible-cable, Screwed joint Type



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			

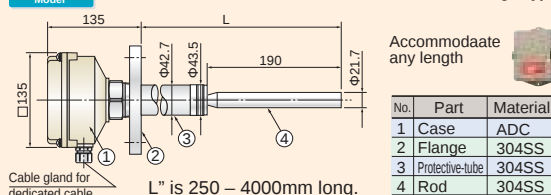
Integrated Model KVK-18 Flexible-cable, Flange Type



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



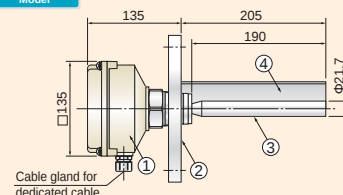
Cable gland for dedicated cable

"L" is 250 – 4000mm long.

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

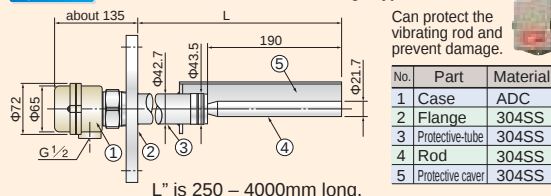


Cable gland for dedicated cable

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

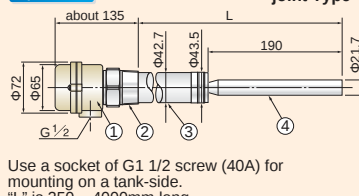


"L" is 250 – 4000mm long.

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



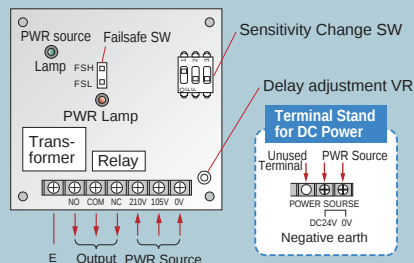
Use a socket of G1 1/2 screw (40A) for mounting on a tank-side.
 "L" is 250 – 4000mm long.

Accommodate any length

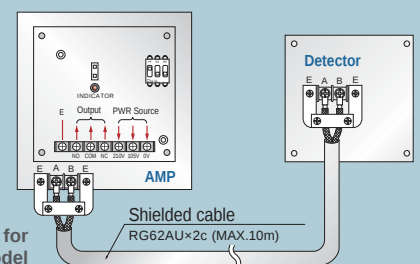
No.	Part	Material
1	Case	ADC
2	Screw	304SS
3	Protective-tube	304SS
4	Rod	304SS

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.

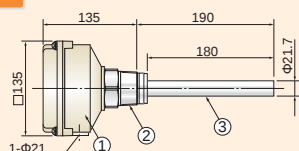
WITHSTAND LOAD TYPE THAT CAN WITHSTAND THE LOAD UP TO 500N BY POWDERS

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 : $-20 \rightarrow +60^\circ\text{C}$ (No condensation/no freezing)
- Detector : $-20 \rightarrow +80^\circ\text{C}$ (No condensation/temperature no freezing)
- $-20 \rightarrow +150^\circ\text{C}$ (Separate type)
- Detector pressure : 1MPa (10kgf/cm²)
- 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]

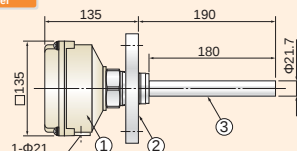
Integrated Model KVA-111 Screwed joint Type



KVK Standard

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

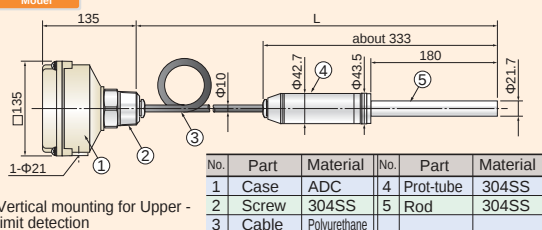
Integrated Model KVA-121 Flange Type



KVK Standard

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

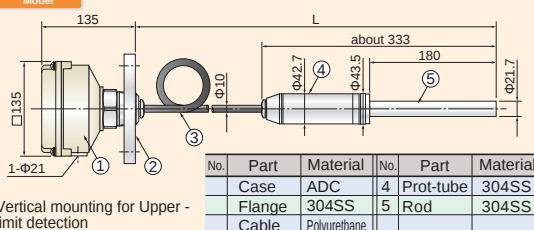
Integrated Model KVA-17 Flexible-cable, Screwed joint Type



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			

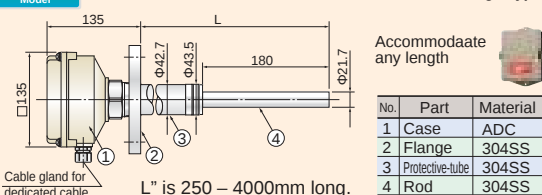
Integrated Model KVA-18 Flexible-cable, Flange Type



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 KVA-23 Extension Protective-tube · Flange Type



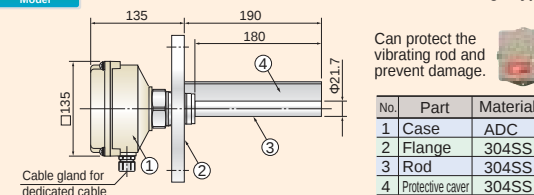
Cable gland for dedicated cable

"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 KVA-241 Std Probe · Protective Cover, Flange Type

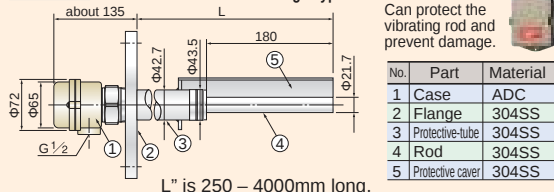


Cable gland for dedicated cable

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 KVA-35 Extension Protective-tube · Protective cover, Flange Type

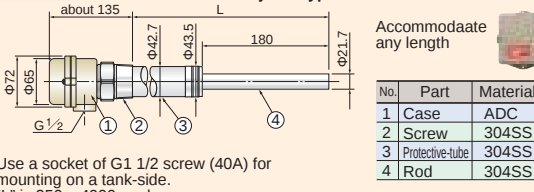


"L" is 250 – 4000mm long.

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 KVA-36 Extension Protective-tube · Screwed joint Type

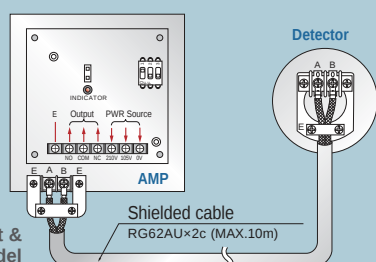


Use a socket of G1 1/2 screw (40A) for mounting on a tank-side.
"L" is 250 – 4000mm long.

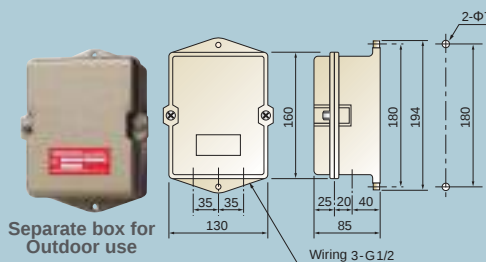
Accommodate any length

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

Wiring for Compact & Separate Model



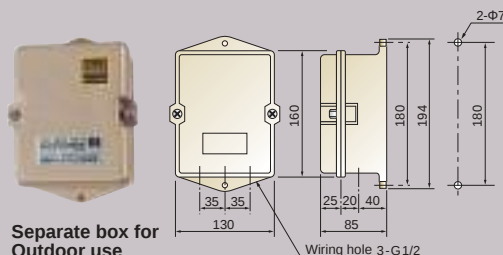
Separate box for Outdoor use



Model KVS



Explosion-proof : Intrinsic Safety Explosion-proof i2G4
NIIS No. T36593





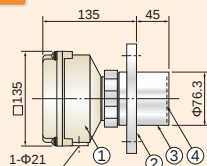
Model KVF

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.

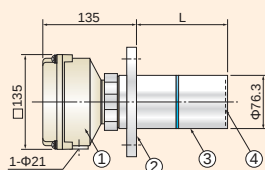
Integrated Model KVF-121 Flat Type



Standard KVF model for lower limit

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

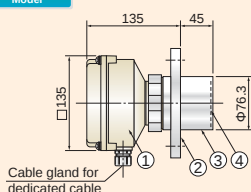
Integrated Model KVF-132 Extension Protective-tube · Flat Type



Can accommodate a certain limit of length.

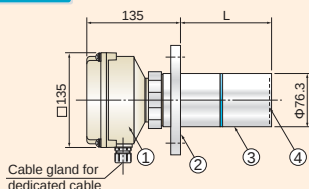
No.	Part	Material
1	Case	ADC
2	Flange	304SS
3	Protective-tube	304SS
4	Oscillatory board	304SS

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 $\pm 10\%$

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 : $-20 \sim +60^\circ\text{C}$ (No condensation/ no freezing)

Detector temperature : $-20 \sim +80^\circ\text{C}$ (No condensation/ no freezing)

Detector pressure : 50KPa (0.5kgf/cm²)

Detector material : SUS304

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

- Screwed joint Type R1-1/2 (Standard)
- Standard Probe-Flange Type
- Extension Protective-tube-Flange Type
- Standard Probe-Protective cover, Flange Type
- Extension Protective-tube-Protective cover, Flange Type
- Extension Protective-tube-Screwed joint Type R1-1/2
- Flex. Cable, Screwed joint Type
- Flex. Cable, Flange Typed
- Other special

Configuration

- Integrated Model of Probe & Amplifier
- Separate Model of Probe & Amplifier
- 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

- Screwed joint Type R1-1/2 (Standard)
- Standard Probe-Flange Type
- Extension Protective-tube-Flange Type
- Standard Probe-Protective cover, Flange Type
- Extension Protective-tube-Protective cover, Flange Type
- Extension Protective-tube-Screwed joint Type R1-1/2
- Flex. Cable, Screwed joint Type
- Flex. Cable, Flange Typed
- Other special

Configuration

- Integrated Model of Probe & Amplifier
- Separate Model of Probe & Amplifier
- Compact & Separate Model of Probe & Amplifier

Explosion-proof

A: Withstand lode 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

- Screwed joint Type R1-1/2 (Standard)
- Standard Probe-Flange Type
- Extension Protective-tube-Flange Type
- Standard Probe-Protective cover, Flange Type
- Extension Protective-tube-Protective cover, Flange Type
- Extension Protective-tube-Screwed joint Type R1-1/2
- Other special

Configuration

- Integrated Model of Probe & Amplifier
- Separate Model of Probe & Amplifier
- Compact & Separate Model of Probe& Amplifier

Explosion-proof

S: Explosion-proof

KVF- Probe s Length

- | |
|-------------------------|
| 1: 45 (Standard) |
| 2: $72 \leq L \leq 200$ |

Mounting

- Standard Probe-Flange Type
- Extension Protective-tube-Flat Type

Configuration

- Integrated Model of Probe & Amplifier
- Separate Model of Probe & Amplifier

Explosion-proof

F: Flat Type

APPLICATION

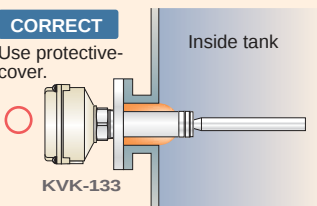


MOUNTING INSTRUCTIONS

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.

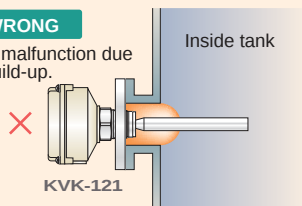
CORRECT

Use protective-cover.



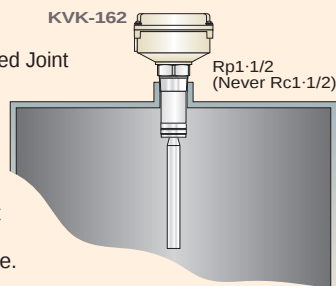
WRONG

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.

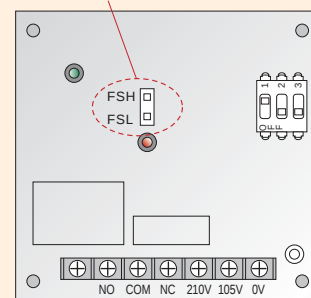
*Rc1 1/2 thread can not be used.



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 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

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Agent



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