Kansai Automation

SENSOR TECHNOLOGY

MULTI-POINT CAPACITANCE TYPE LEVEL SWITCH

Model KCD

NO MOVING PART!! FIVE-POINT OUTPUT!!

CAT. No. C-043-0812E

KANSAI Automation Co.,Ltd.

KCD Multi-point Capacitance Type Level Switch

WE HAVE INVENTED THE 5-POINT OUTPUT WITH AN ELECTRODE!

THE DETECTION POSITION CAN ARBITRARILY BE CHANGED!

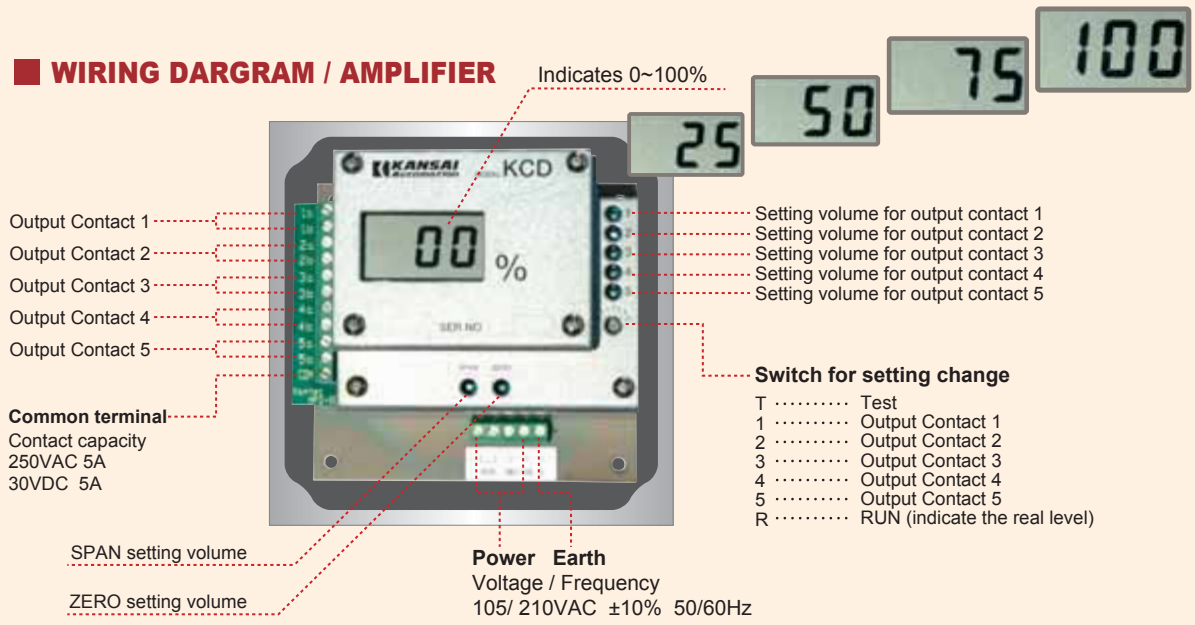
CAPACITANCE TYPE SERIES FOR CONTACT LEVEL MEASUREMENT.

Reliably detecting level for liquids (Conductive Liquids / ΔC= 300 - 800pF)

FEATURES

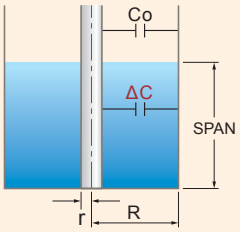
- You can easily set 5 points via digital display by way of zero span adjustment only.
- As opposed to a level switch whose contact position is fixed, you can arbitrarily change the alarm position if it is within the measuring range of the electrode.
- Alarm operative direction (ON when a liquid level rises, or ON when the level comes down) can be changed by selecting the proper terminal on the amplifier PCB.
- Even when the tank material is other than metal, it can fully operate with an auxiliary electrode installed or with an earth of a metal tape provided outside of the tank.

WIRING DARGRAM / AMPLIFIER



PRINCIPLE OF OPERATION

As it is mounted coaxially with the tank wall (see the diagram on the right), capacitance C × (= Co + ΔC) will be formed between the tank wall and the electrode. Converting Co to synchronized square-wave pulse, it retrieves pulse-width modulated in proportion to ΔC in the form of voltage level. It compares the voltage level with values set by the Set Volume and provides output contact signals.



$V \propto \triangle C$
$V \propto SPAN$
$Io \propto V$
$Io \propto SPAN$

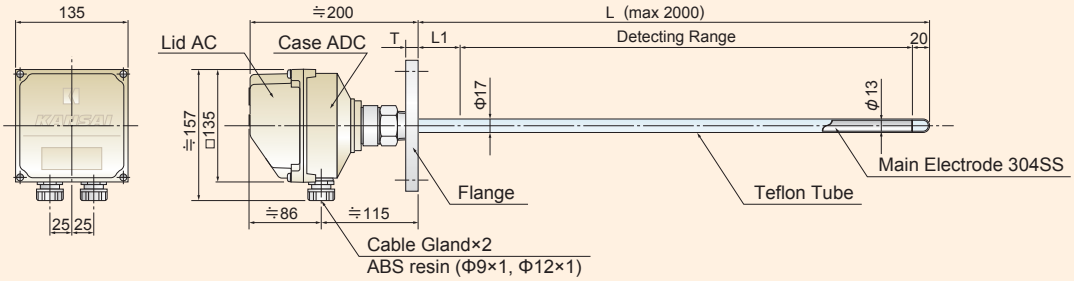
ε_x : Relative permittivity of an object to be measured
ε_o : Relative permittivity of air ≒1
V : Signal Voltage
Io : Out put Current (Option)

$$\Delta C = \frac{K \times (\varepsilon_x - \varepsilon_o) \times SPAN}{Log_{10}(R/r)}$$

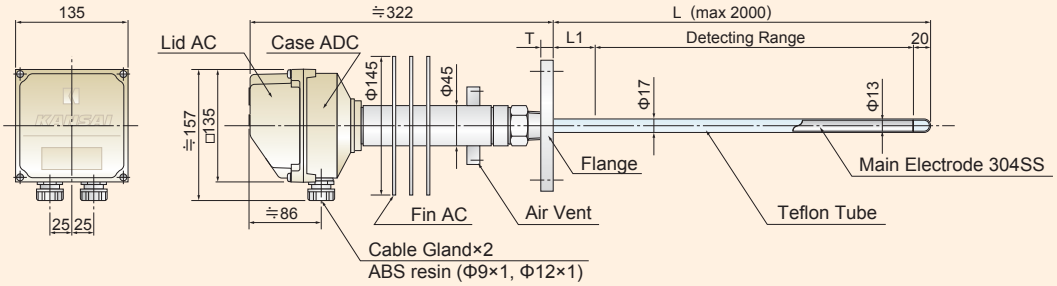
$\Delta C = Cx - Co$ (Capacitance when tank is empty, K =constant)

OUTLINE DRAWING

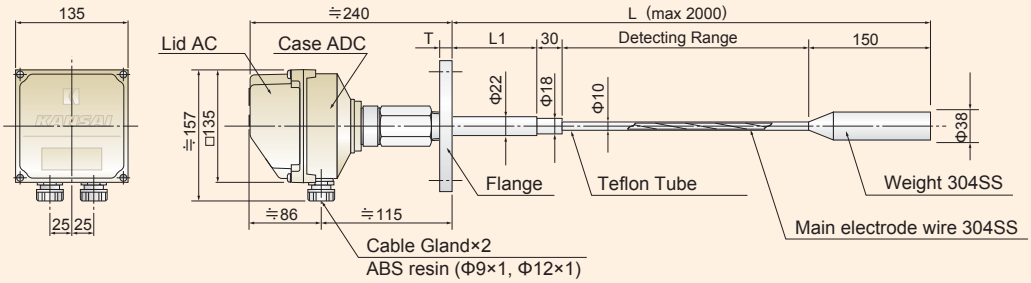
KCD-110C TEFLON COATING ELECTRODE (max.60°C)



KCD-110C-H HEAT-RESISTANT TEFLON COATING ELECTRODE (max.120°C)



KCD-310C WIRE-TYPE TEFLON COATING ELECTRODE (max.60°C/ max.120°C for heat-resistant Type)



SPECIFICATION

Supply Voltage	105 /210VAC ±10% 50/60Hz
Power Consumption	4.5VA
Temperature	0~55°C (No condensation)
Output Contact	5C COMMON
Contact Capacity	250VAC 5A / 30VDC 5A
Setting & Display	0~100% Digital display
Relative Permittivity suitable for measurement	Conductive liquids (depend on the object to be measured)
Accuracy	2% (Amplifier only)
Probe Length	Maximum 2m (Straight rod and wire / coated electrode) *Please consult with us when the probe exceeds 2m.

DESIGNATION OF MODEL

KCD-□□□C-□

e.g. KCD-110C-H

Temperature inside tank

None no fin (0~60°C) ····· Standard
H with fin (0~150°C)

Electrode / Amplifier built-in Type

0 Electrode/AMP one-unit ·····Standard

Sensitivity

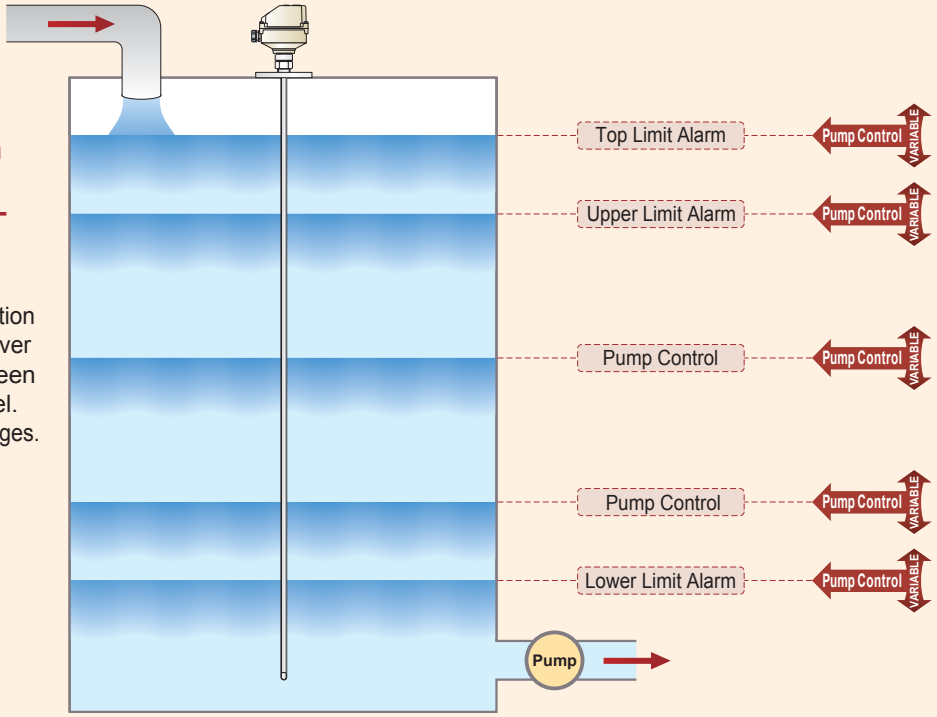
1 300~800pF ·····Standard
2 below 300pF Option high sensitivity, special
3 over 800pF Option low sensitivity, special
9 Special

Shape of Electrode

1 Φ17 Teflon-coating straight rod (Tubing) ····Standard
2 Φ22 Teflon-coating, straight rod (Tubing) ···Rugged
3 Φ10 Teflon-coating, wire electrode (Tubing)
9 Special

Just a KCD model can control water supply / drainage and provide respective alarm

It is so simple to change a detection position with a flathead screwdriver while watching the display screen without changing the liquid level. Flexibly responds to process changes.



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