MULTI-POINT CAPACITANCE TYPE LEVEL SWITCH

Model KCD

NO MOVING PART!! FIVE-POINT OUTPUT!!
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.

THE DETECTION POSITION CAN ARBITRARILY BE CHANGED!
CAPACITANCE TYPE SERIES FOR CONTACT LEVEL MEASUREMENT.

WIRING DARGRAM / AMPLIFIER

Indicates 0~100%

Setting volume for output contact 1
Setting volume for output contact 2
Setting volume for output contact 3
Setting volume for output contact 4
Setting volume for output contact 5

Switch for setting change
T ---- Test
1 ---- Output Contact 1
2 ---- Output Contact 2
3 ---- Output Contact 3
4 ---- Output Contact 4
5 ---- Output Contact 5
R ---- RUN (indicate the real level)

Output Contact 1
Output Contact 2
Output Contact 3
Output Contact 4
Output Contact 5
Common terminal
Contact capacity: 250VAC 5A
30VDC 5A

SPAN setting volume
ZERO setting volume

Power
Earth
Voltage / Frequency
105/ 210VAC ±10% 50/60Hz
**PRINCIPLE OF OPERATION**

As it is mounted coaxially with the tank wall (see the diagram on the right), capacitance $C \times (= C_0 + \Delta C)$ will be formed between the tank wall and the electrode. Converting $C_0$ to synchronized square-wave pulse, it retrieves pulse-width modulated in proportion to $\Delta C$ in the form of voltage level. It compares the voltage level with values set by the Set Volume and provides output contact signals.

\[ \Delta C = \frac{K \times (\varepsilon_x - \varepsilon_0) \times \text{SPAN}}{\log_{10} (R/r)} \]

\[ \Delta C = C_x - C_0 \ (\text{Capacitance when tank is empty}, K = \text{constant}) \]

**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.*
### 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
- Standard 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 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

### 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.

### DESIGNATION OF MODEL

**KCD-□□□□□-□**

- 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

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

**KANSAI Automation Co., Ltd.**

Headquarters: 1-29-6, Hamamatsu-cho, Kita-ku, Osaka 530-0056, Japan
TEL. 81-6-6312-2071 FAX. 81-6-6314-0848
E-mail: info@kansai-automation.co.jp
http://www.kansai-automation.co.jp

Tokyo Branch: 2-14, Togano-cho, Kita-ku, Tokyo 105-0013, Japan
TEL. 81-3-5777-6931 FAX. 81-3-5777-6933

Nagoya Office: 1-3-31-27, 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

*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.