

CM SERIES

CAPACITIVE LEVEL MEASUREMENT



Features

- Wide range of application
- Measuring range up to 10 meter

Approval

i3aG5

General Description

The CM is designed for continuous level measurement of up to 10 meter for liquids and solids in containers. The remote controller can be mounted up to 100 meter away from the sensor. Use the CM series where non contact measurement is unacceptable due to operating conditions such as temperature, pressure, aggressive chemicals, etc. Several models are differentiated by your applications.

Operational Description

The metal wire or the metal probe inside of the insulation tube constitutes a capacitor with the metal container wall or the reference rod. The capacitance of medium is converted into high frequency voltage and current signal proportional to the level.

Technical Note

- The specification of product shall be changed by the application and operational condition.
- The connecting cable can not be shorten or extended at site. The separation distance must be informed when you order.

Specifications

Sensor

| Model | CM-BN | CM-BF | CM-BPN | CM-BPF | CM-YL |
|-----------------------|------------------|------------------|---------------|-----------|----------|
| Description | Standard | | Stilling tube | | Wire |
| Application | Liquids / Solids | | Liquids | | Solids |
| Drawing | | | | | |
| Mounting | R1 | JIS10K50A | R1 | JIS10K50A | JIS5K50A |
| Operating Temperature | Housing | -10 to 55°C | | | |
| | Detection part | -10 to 130°C | | | |
| Maximum Pressure | 100 kPa | | | | 500 kPa |
| Maximum Humidity | 85% RH | | | | |
| Sensitivity | 30 to 2000 pF | | | | |
| Accuracy | ±3% F.S. | | | | |
| Material | Housing | AC or ADC12 | | | |
| | Detection part | 304SS + FEP tube | | | |
| Maximum Probe Length | 10000mm | | 4000mm | | 10000mm |
| Cable Entry | G1/2 | | | | |
| Protection | IP65 | | | | |

Controller

| Model | CM-A | CM-A6 |
|-----------------------|-------------------------------------|-------------------------|
| Description | Wall mounting | Wall and Panel mounting |
| Drawing | | |
| Supply Power | 100/200V AC, 110/220V AC±5% 50/60Hz | |
| Power Consumption | Approx. 10VA Max | Approx. 6VA Max. |
| Output Signal | 4 to 20mA DC | |
| Load Resistance | 600 Ω Max. | |
| Operating Temperature | -10 to 50°C | |
| Maximum Humidity | 85% RH | |
| Accuracy | ±3% F.S. | |
| Material | AC | Steel and Acryl resin |
| Cable Entry | 4-G1/2, G1/4 | - |
| Protection | IP54 | IP10 |
| Recommended Cable | TXE (double shield co-axial cable) | |

Sensor

| | | | | | |
|-----------------------|----------------|------------------|----------|--------------|-----------|
| Model | | CM300BNH | CM300BFH | CM300ZNH | CM300ZFH |
| Description | | Standard | | Heat-proof | |
| Application | | Liquids | | Liquids | |
| Drawing | | | | | |
| Mounting | Standard | R1 | JIS5K50A | R1 | JIS10K50A |
| Operating Temperature | Housing | -10 to 50°C | | | |
| | Detection part | -10 to 60°C | | -10 to 120°C | |
| Maximum Pressure | | 100 kPa | | | |
| Maximum Humidity | | 85% RH | | | |
| Sensitivity | | 200 to 2000 pF | | | |
| Accuracy | | ±3% F.S. | | | |
| Material | Housing | ADC12 | | | |
| | Detection part | 304SS + FEP tube | | | |
| Maximum Probe Length | | 4000mm | | | |
| Cable Entry | | G1/2 | | | |
| Protection | | IP65 | | | |

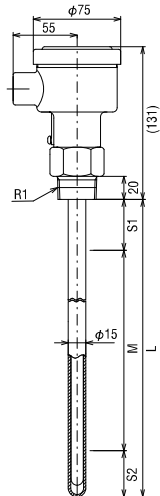
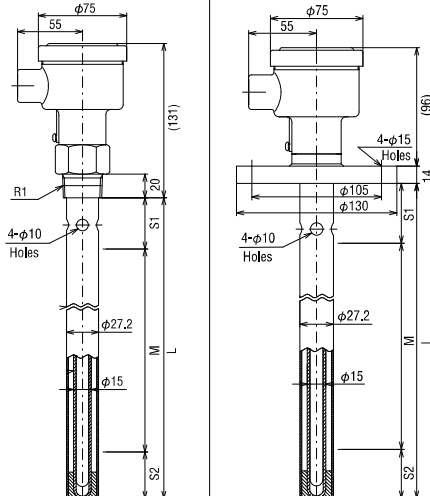
*Model is changed to CM700 series by connecting with CM7000.

*S1 and S2 on the drawing are blanking zone.

Controller

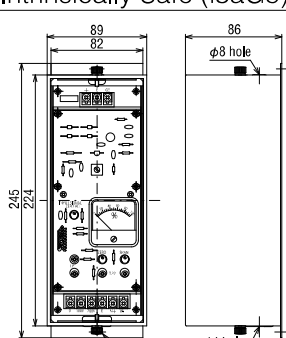
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|-----------------------|--|--|---|
| Model | | CM3000 | CM7000 |
| Description | | Controller for CM300 | Controller for CM700 |
| | | | |
| Supply Power | | 100/200V, 110/220, 120/240 AC±5% 50/60Hz | 100, 110, 120, 200, 220, 240V AC±5% 50/60Hz, 24V DC |
| Power Consumption | | Approx. 4VA Max. | Approx. 4VA or 2.4W Max. |
| Output Signal | | 4 to 20mA DC | |
| Load Resistance | | 600 Ω Max. | |
| Operating Temperature | | -10 to 50°C | -10 to 40°C |
| Maximum Humidity | | 85% RH | |
| Accuracy | | ±3% F.S. | |
| Material | | SPCC (Steel Structure) | Phenolic |
| Protection | | IP10 | |
| Recommended Cable | | CVVS (3-core cable) | |
| Mounting | | 2 x dia. 4.5 holes (Pitch 175) | 2 x dia. 4.5 holes (Pitch 40) |

Sensor

| Model | CM690BN | CM690BF | CM690BPN | CM690BPF | |
|-----------------------|---|------------------|---|----------|----------|
| Description | Standard | | Stilling tube | | |
| Application | Liquids/Solids | | Liquids | | |
| Drawing |  | |  | | |
| Mounting | Standard | R1 | JIS5K50A | R1 | JIS5K50A |
| Operating Temperature | Housing | -10 to 40°C | | | |
| | Detection part | -10 to 60°C | | | |
| Maximum Pressure | 100 kPa | | | | |
| Maximum Humidity | 85% RH | | | | |
| Sensitivity | 200 to 2000 pF | | | | |
| Accuracy | ±3% F.S. | | | | |
| Material | Housing | ADC12 | | | |
| | Detection part | 304SS + FEP tube | | | |
| Maximum Probe Length | 4000mm | | 4000mm | | |
| Cable Entry | | | G1/2 | | |
| Protection | | | IP65 | | |

*S1 and S2 on the drawing are blanking zone.

Controller

| Model | CM6900 |
|-----------------------|--|
| Description | Intrinsically Safe (i3aG5) |
| |  |
| Supply Power | 100/200V, 110/220, 120/240 AC±5% 50/60Hz |
| Power Consumption | Approx. 5VA Max. |
| Output Signal | 4 to 20mA DC |
| Load Resistance | 500 Ω Max. |
| Operating Temperature | -10 to 40°C |
| Maximum Humidity | 85% RH |
| Accuracy | ±3% F.S. |
| Material | SPCC (Steel Structure) and Acryl resin |
| Cable Entry | 4-dia4.5 holes |
| Protection | IP10 |
| Recommended Cable | RG62A/U (co-axial cable) |
| Mounting | 2 x dia 4.5 holes (Pitch 235) |