



JQA-2894



JQA-EM0561  
Nobeoka Office



*BOTTOM LIQUID DETECTION SYSTEM*

# Apolarm™ B

CS-0305

Capacitance Sensor

AS-15

Signal Converter

ASAHI KASEI TECHNOSYSTEM CORPORATION

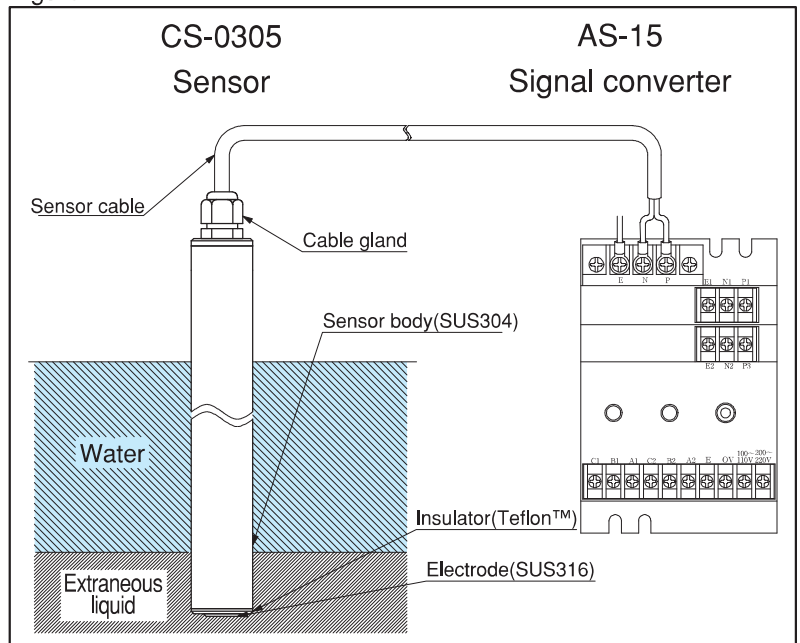
# Apolarm™ B — for early liquid leak detection

The Apolarm™ B system is designed to detect the presence of a relatively heavy liquid layer below a lighter liquid layer – and thus to detect heavier-than-water liquid chemicals in water and conversely to detect water in oil and other light liquids.

The system comprises a hermetically-sealed capacitance sensor (CS-0305) and a signal converter (AS-15) for power supply, signal conversion, and alarm activation. The CS-0305 sensor circuit applies a high-frequency potential to a single electrode at the bottom of the sensor, and detects any significant change in capacitance between the electrode and ground.

If an extraneous liquid layer forms below the lighter liquid, the resulting change in capacitance is detected, amplified, and conveyed as a signal current from the sensor circuit via the sensor cable to the AS-15 signal converter, which then engages the liquid leak alarm circuit.

Figure 1



## Salient features

- **Detection of extraneous liquids at the bottom of drain pits, channels, and tanks in production facilities and in utility conduits and tunnels.**
  - Heavier-than-water liquids at bottom of water.
  - Water at bottom of light liquids.
- **Inherent operational reliability**
  - Delay circuit in signal converter, to prevent false alarms due to transient fluctuation.
- **Strong, durable construction**
  - Stainless steel (SUS 304) sensor body.
  - Stainless steel (SUS 316) electrode.
  - Flex-, heat-, and oil-resistant sensor cable with PVC sheathing.
- **Fail-safe alert**
  - System alarm automatically initiated by relay circuit, in the event of power loss at signal converter, cable disconnection, or cable short-circuit.

## Specifications

### Sensor – Apolarm™B CS-0305

Detectable layer thickness	3 mm or more	
Detected oils	In water	Water-insoluble liquids of >1.0 S.G. and ≤5.0 permittivity
	In oils	Water
Housing structure	Watertight, IEC Class IP67 equivalent	
Housing material	Stainless steel (SUS 304)	
Electrode material	Stainless steel (SUS 316)	
Electrode insulator	Teflon™	
Weight (1m length)	Approx. 1.7 kg (excluding sensor cable)	
Signal cable(included)	PVC sheathing, two 0.2 mm <sup>2</sup> wires, 10 m length Highly flex-, heat-, and oil-resistant	
Operating temperature	-10°C ~ +50°C (liquid layers must be free from freezing)	
Dimensions	Diameter 25 mm, length 50~200 cm (increments of 50cm,inquire for longer than 200cm)	

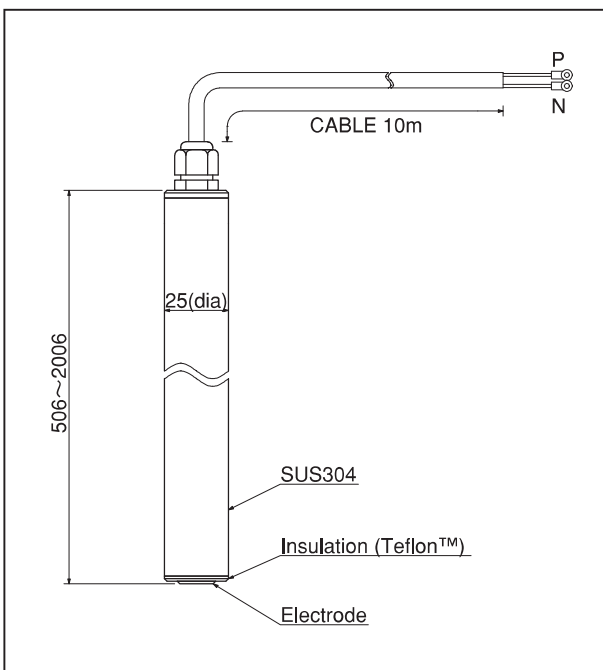
### Signal converter – AS-15

System alarm	Initiated by power loss at signal converter, cable disconnect, or cable short-circuit	
Delay timer	Adjustable, approx. 1–10 sec.	
Power source	AC100/110V, 200/220V; 50/60 Hz	
Power consumption	Approx. 2VA	
Relay contacts	Form C configuration for both oil detection signal and system malfunction signal	
Terminal rating	AC250V, 4A; DC30V, 4A	
Operating temperature	-10 to +50 °C	
Operating humidity	≤95% RH	
Weight	Approx. 0.8 kg	
Liquid detection lamp	High-permittivity liquid	Green LED normally ON, turns OFF upon detection.
	Low-permittivity liquid	Green LED normally OFF, turns ON upon detection
System alarm lamp	Red LED normally OFF, turns ON upon power abnormality	

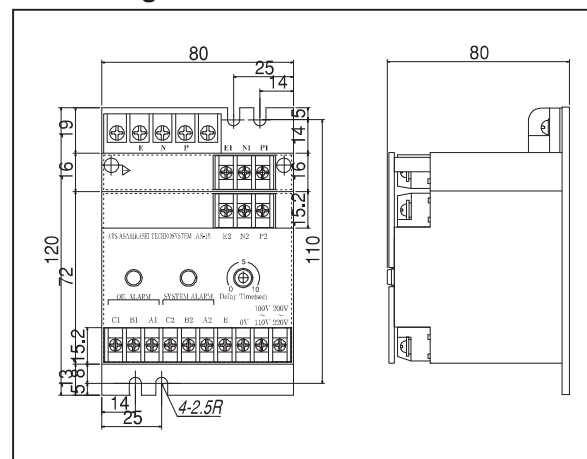
## Dimensional views

All dimensions in millimeters unless otherwise noted.

### ●CS-0305 sensor



### ●AS-15 signal converter

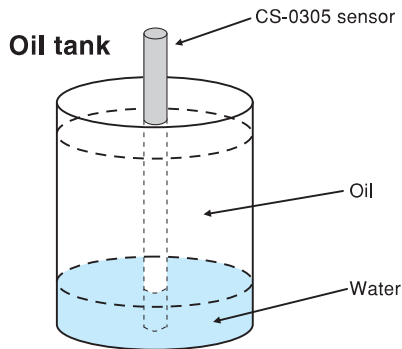


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## Typical installations

### ●Water detection in oil tank

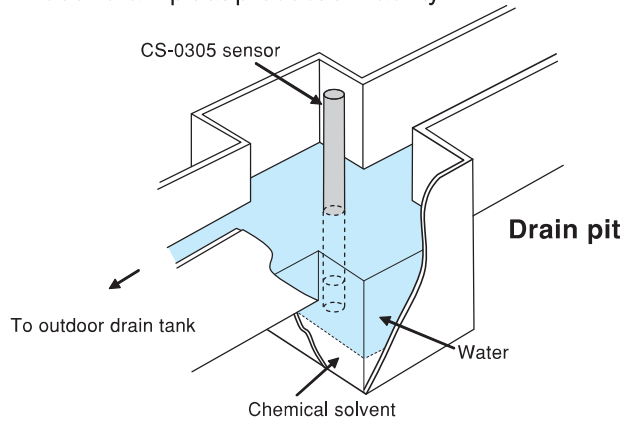
Detection of water at bottom of tank normally containing only oil.



Drawing not to scale.

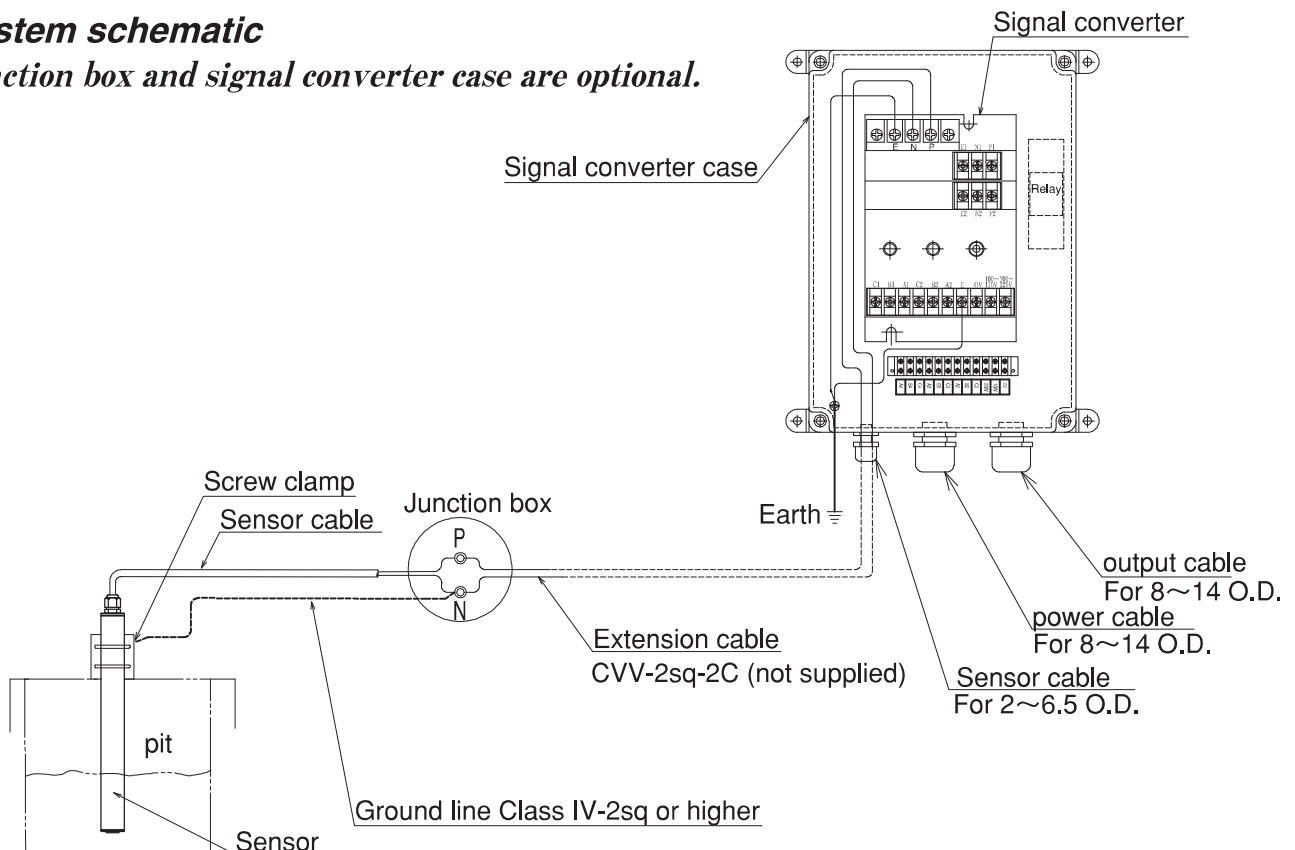
### ●Chemical solvent detection in water drain pit

Detection of chemical solvent (S.G. greater than 1.0) in indoor drain pit at production facility



## System schematic

Junction box and signal converter case are optional.



### Important notes and precautions

- Product must be handled and used in conformity with Owner's Manual.
- Product specifications and all other descriptions contained herein are subject to change without notice.
- Actual product color may differ from that of photographs, due to color printing limitations.

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