



JQA-2894



JQA-EM0561
Nobeoka Office

OIL LEAK DETECTION SYSTEM

Apalarm™ C

CSH-3005E

Capacitance Sensor

ASH-40E

Signal Converter

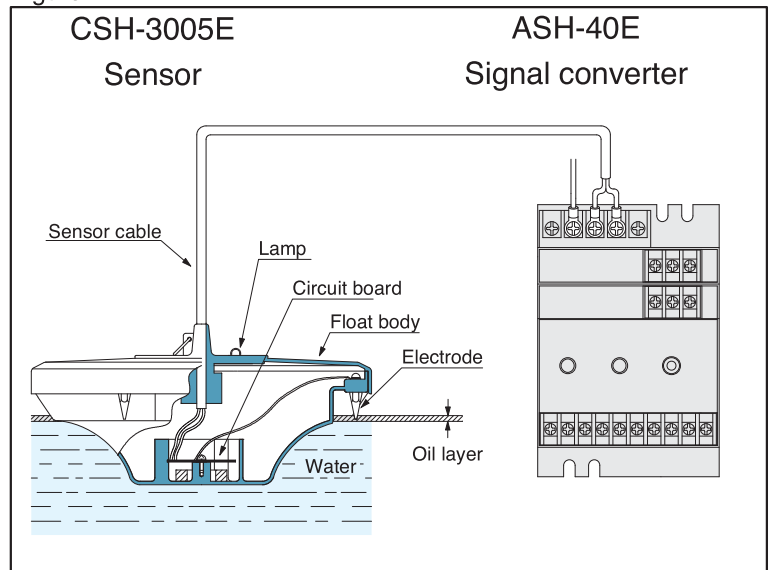


ASAHI KASEI TECHNOSYSTEM CORPORATION

The Apolarm™ C oil leak detection system comprises a hermetically sealed floating-body sensor (CSH-3005E) and a signal converter (ASH-40E) for power supply, signal conversion, and alarm activation. The CSH-3005E sensor circuit applies a high-frequency potential to three electrodes which project downward from the float into the water below.

If an oil layer forms on the water surface, and the electrodes thus project into oil rather than water, it effectively lowers the capacitance between the electrodes and ground. This change is detected, amplified, and conveyed from the sensor circuit as a signal current via the sensor cable to the signal converter, which then engages the oil leak alarm circuit.

Figure 1



Salient features

- **Inherent operational reliability**
 - Asymmetric float conformation at waterline, for stable function and operation.
 - Signal converter delay circuit, to prevent false alarms due to transient loss of contact with water surface.
 - Lower-body conformation and electrode positioning designed to prevent short-circuiting by sludge or slime deposits (Fig. 2).
 - Electrodes designed to prevent false alarms due to grease or grime adhesion (Fig. 3)
- **Capability for detection of high-viscosity oils (Fig. 4).**
- **Minimum detectable oil-layer thickness 3-5 mm; up to 50 mm with optional electrodes.**
- **Display lamp on sensor body, for visual on-site check of operational status.**
- **Sensor body composed of oil-, chemical-, and weather-resistant self-extinguishing plastic.**
- **System alarm automatically engaged by relay circuit, in the event of power loss at signal converter, cable disconnection, or cable short-circuit.**

Figure 2

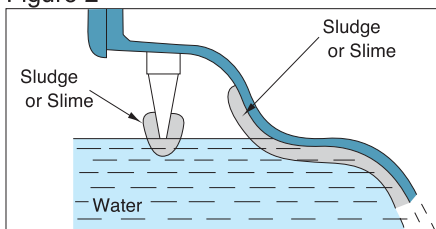


Figure 3

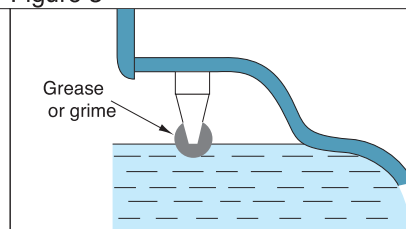
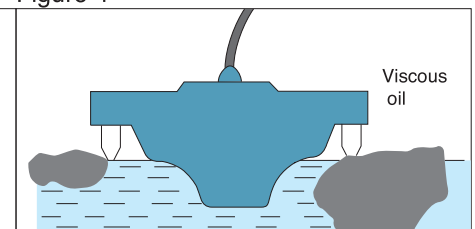


Figure 4



Specifications (Non-explosion-proof type)

Sensor – Apolarm™ CSH-3005E

Minimum detectable oil layer thickness	3–5 mm
Detected oils	Crude oil, gasoline, diesel fuel, kerosene, heavy fuel oil, lubricating oil, organic solvents, animal and vegetable fats and oils
Housing structure	Watertight, IEC Class IP67 equivalent
Housing material	High impact PVC
Electrode material	SUS 316
Oil detection lamp	Green LED normally ON, turns OFF upon oil detection .
Weight	Approx. 2.6 kg (excluding sensor cable)
Signal cable(included)	PVC sheathing, two 0.75 mm ² wires, 12 m length, outside diameter:approx. 9.5 mm Highly flex-, heat-, and oil-resistant
Max. cable length	Extension up to 2 km maximum
Operating temperature	-20 to +60°C(liquid layers must be free from freezing)

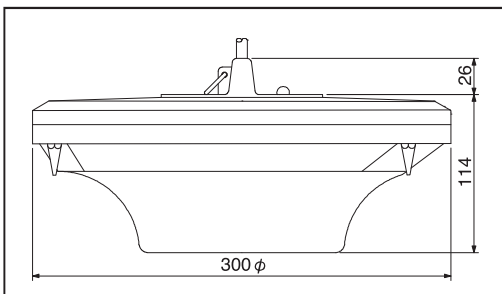
Signal converter – ASH-40E

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
Oil detection lamp	Green LED normally ON, turns OFF upon oil detection.
System alarm lamp	Red LED normally OFF, turns ON upon power abnormality

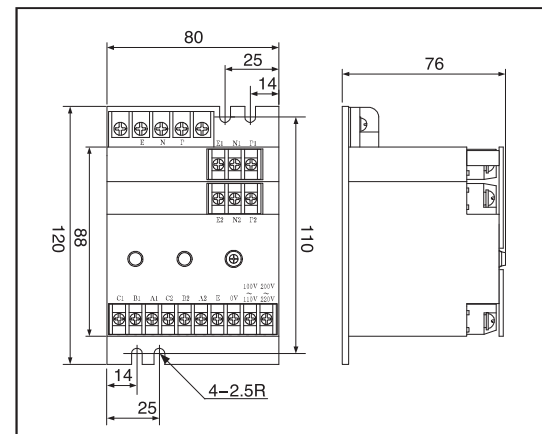
Dimensional views

All dimensions in millimeters unless otherwise noted.

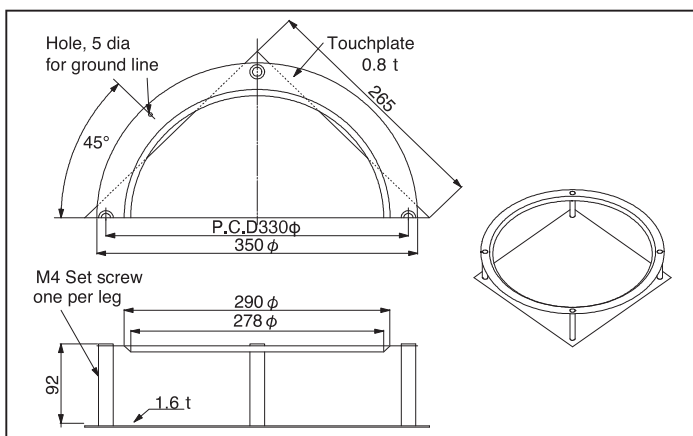
●CSH-3005E sensor



●ASH-40E signal converter



●TC-SE low-water guard (optional)

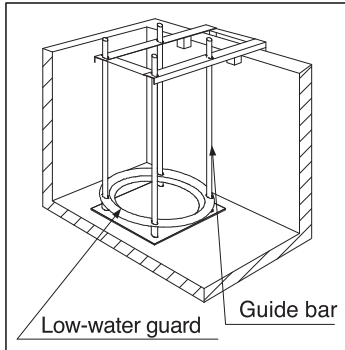


Prevents alarm initiation in event of low water level, by grounding sensor electrodes.

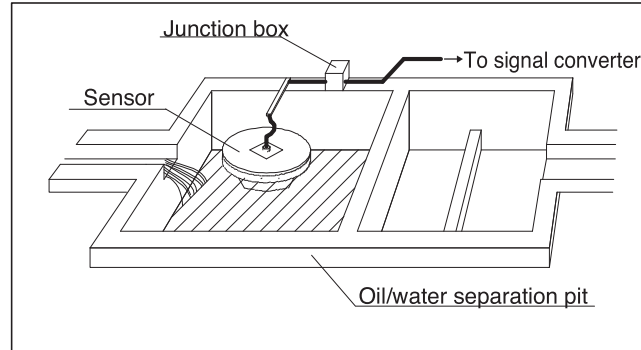
- Material: stainless steel (SUS 304)
- Weight: approx. 1.4 kg
- Legs: 10.9 mm I.D., for arrester guide bars (6A pipes or 10 mm dia. rods)

Typical installations

● Dry-channel drain pit

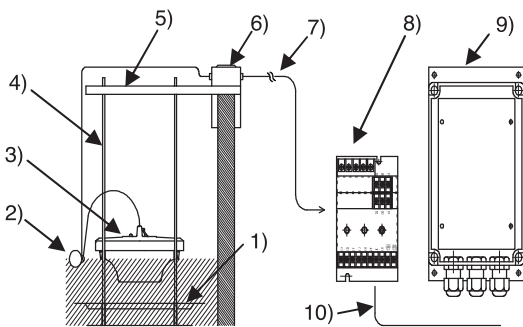


● Oil/water separation pit



System schematic

All components optional other than sensor and signal converter.



1. Low-water guard
2. Cable float* (to prevent cable entanglement)
3. CSH-3005E sensor
4. Guide bar (to prevent drifting and tilting of sensor float)
5. Guide bar support
6. Junction box
7. Extension cable
8. ASH-40E signal converter
9. Signal converter case (for non-ingress class IEC IP65)
10. Power and alarm cable

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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