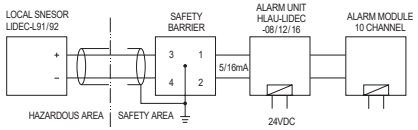
**HANLA's cargo tank level alarm system is thoroughly designed according to IMO'S latest rule requirements, and are to be required by IBC code.**

## GENERAL

Acoustic wave type LIDEC-L91/92 local sensor is specially designed and patented for the marine applications. The series LIDEC L91/92 offers a reliable solution for high level and high-high level(overfill)alarm detection of chemical, FO, DO tank, etc.
The principle of this fully static system is based on the propagation of an acoustic wave inside a metallic probe.
A piezo-electric sensing element produces the wave along the probe. Without liquid, waves propagate without attenuation inside the metal of probe. Subject waves are detected by a receptor which converts them into an electrical signal, re-injected on the emitter, the gain being adjusted in order to obtain a permanent oscillation on the loop.
As the liquid reaches the end of probe, a portion of the waves is absorbed, the oscillation stops and the alarm is activated.

## SYSTEM CONFIGURATION

For the total system, safety barrier, alarm unit(as a converter current to on-off signal)and annunciator are connected with local sensor LIDEC-L91/92.




## FEATURES

- Desinged for solution of safe construction which the probe does not work as electrode for sparks between comming up liquid surface and highly voltage charged by electro-statics during cargo loading.
- Fully static system with no moving parts.
- No special calibration depending on the liquid.
- Vibration, shock and electric interferences resistant.
- Pressure and temperature resistance.
- Desinged for all kind of liquid.
- Including fail safe system.
- Manual test device : Prior to loading or any time, the level alarm can easily be tested by using a testing tool with permanent magnet.

## APPLICATION

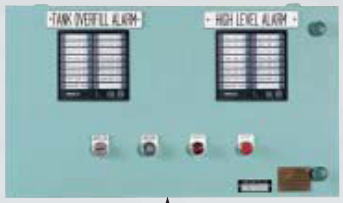
These systems are used for the level alarm in cargo tanks of all kind of oil/chemical carriers.

## STANDARD MODEL AND APPLICATION

- LIDEC - L91 : High level or overfill alarm.
- LIDEC - L92 : High level and overfill alarm.

ACOUSTIC WAVE TYPE LOCAL SENSOR

HIGH AND OVERFILL ALARM PANEL




INTERNAL VIEW

## SYSTEM SELECTION FOR ORDER CONFORMATION

CMS - LIDEC - □

- L91 : HIGH LEVEL OR OVERFILL ALARM SYSTEM
- L92 : HIGH LEVEL AND OVERFILL ALARM SYSTEM

## TECHNICAL SPECIFICATION

### ALARM SENSOR

- Model : [ High alarm:LIDEC-L91
  High and overfill alarm:LIDEC-L92
- Conn. size : JIS 5K 100A(standard)
- Conduit conn. size : JIS 5K 32A(standard)
- Material : - Housing - SCS13
  - Flange - SUS304 or SUS316
  - Sensor Probe - SUS316L
- Power supply : 18 to 28VDC
- Output : 4 ~ 20mA current loop with
  [ 6mA No alarm
  18mA Alarm
- Operating Temp. : AMB- -25℃ to 70℃
  LIQUID- -40℃ to 150℃
- Protection : IP56 over
- Safety : EEx ia ⅡC T6

### LEVEL ALARM PANEL

- Mounting type : Wall mounting or console mouning
- Power supply : [ AC 110/220V(Main)
  : DC 24V(Back up)
- Consist of : - Alarm annunciator/10ch
  - Alarm unit for lidec sensor
  - Safety barrier
  - Power lamp
  - AC and DC power fail alarm
  - Alarm buzzer
- External alarm : Horn & Light

## CARGO TANK LEVEL ALARM PANEL

- The cargo tank level alarm panel will be designed and arranged for level alarm based on the number of tanks and tank location etc. The cargo tank level alarm panel gives audible and visible alarm and also external alarm will be provided.
- The individual external alarm will be provided in accordance with owner requirement as optional items.

## ALARM MODULE

- Channel number : 16 contacts.
- Alarm Input time delay : 0~99 sec.
- Alarm escape time delay : 0~99 sec.
- Channel outputs : NC or NO.
- Common relay output.
- Internal Buzzer.
- Buzzer Stop button.
- Flicker Stop button.
- Supply voltage : 24VDC(18~32VDC).
  100~240VAC(option).
- Indication LEDs : 16 ×red/green, 1 ×yellow, 1 ×green
- First alarm flashing.
- Serial Communication : RS-485.
- Channel setting : by internal rotary switch.
  by windows setting program.
- Power consumption : Max. 4.5 Watt at 24VDC.
- Operating temperature : -10℃ to +55℃( 70℃ peak ).
- Alarm module enclosure : standard DIN 144 × 144 × 86 mm.
- Type code selection : AU-160D-AB.
  A : Channel Output.
  0 : None.
  1 : Isolated Output.
  B : Power.
  0 : 24VDC.
  1 : 100~240VAC
- AU-160D : High Level Alarm, Overfill Alarm application. Inhibit buttons for each channel. Navigation function
- AU-160D(W) : Water Ingress Detection System application. Overriding buttons for Pre-alarm and Main-alarm.
- Optional repeater unit : AU-160R by RS-485.

DIMENSION FOR LOCAL SENSOR LIDEC-L92