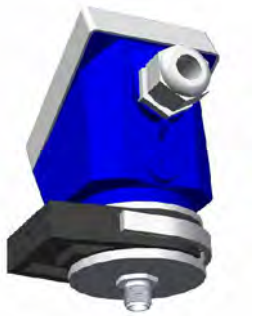
DISIBEINT

# NCAR AB PVC

## LEAKAGE DETECTOR



| | |
|---|---|
| Application | Leakage control for conductive liquids. The KNAA amplifier is integrated in the head itself. Particularly suitable for a leakage control in twin-chambered tanks. |
| Differential character | The device has a system to determine if it exists communication between the sensor and the amplifier. When the communication with the electrodes interrupts, the device indicates this state through intermittence in the output relay with a relationship of 30% activated and 70% deactivated. |
| Operating principle | The sensor uses the electrodes to detect liquid presence.<br>When the liquid is in contact with the sensor, the relay activates as marked in the table 'Warning mode'.<br>The warning mode should be defined between fixed or intermittent.<br>If the warning mode is intermittent, the user could define the intermittence period of 1, 2 or 3 seconds.<br>In order to adapt the installation characteristics easer, the state of the contact of the relay could be selected. |

| Warning mode | Liquid detection | Cable break detection |
|---|---|---|
| Fixed | The relay is activated continuously while maintaining the leak. | The relay is activated through intermittence with a relationship of 30% activated, 70% deactivated for a period of 1 second. |
| Intermittent | The relay is activated through intermittence with a relationship of 70% activated, 30% deactivated for a period of 1, 2 or 3 seconds, according to the selection. | The relay is activated through intermittence with a relationship of 30% activated, 70% deactivated for a period of 1, 2 or 3 seconds, according selection. |

| Sensor | Conductive | By float |
|---|---|---|
| Process connection | Through the cable itself, attached to the head by M12 conector. | By the cable itself, attached to the head using an M12 connector. |
| Model | NS2R | IMNCR 70 |
| Sensitivity | Fixed to 30 KΩ (33,3 μs) | - |
| | | Any type of liquid |

See amplifyed information in page 4

| Housing | |
|---|---|
| Material and dimensions | PBT. 64 x 95 x 110 mm |
| Process connection | Bracket (see accessories) |
| Protection | IP67 |
| Temperature | -20..+50 ºC |
| Cable gland | M20 x 1,5 (IP68) |

| Output | |
|---|---|
| Type | SPDT relay 6A/250VCA |
| Response time | · At power on: 800 ms<br>· At liquid detection: 500 ms |

| REFERENCE | | PROCESS CONNECTION | | | SUPPLY VOLTAGE | |
|---|---|---|---|---|---|---|
| NCAR | Level sensor | AB | Holding bracket | PVC | 024 | 24 VAC |
| | | | | | 048 | 48 VAC |
| | | | | | 110 | 110..125 VAC |
| | | | | | 230 | 220..240 VAC |
| | | | | | 901 | 15..70 VAC/DC |
| | | | | | 902 | 60..240 VAC/DC |

To compose a reference, select one option of each column.

Exemple: **NCAR AB PVC 024**

# NCAR AB PVC

## Start-up and adjustment

Prior to start working with the sensor NCAR it must be adjusted for getting a right operation. Adjustments can be modified whenever required. It must be taken into account that the behaviour of the device can be different whether the adjustments are done while the electrodes are in touch or not with the liquid.
Be sure that the options selector is right positioned. Each time that it is moved to a new option, the Ⓟ led flashes twice indicating that the option has been correctly reached.

*Options selector*

Use this button to select and adjust the differents options according to the following instructions.
Each option shows its default values framed with ☐ at the left column.

*State of the relay contacts*

(Relay NO ( ⌐‾ ): led Ⓟ OFF; Relay NC ( ‾⌐ ): led Ⓟ ON). When accessing to this option, the led Ⓟ shows the actual state of the adjustment. Each time the push-button PROG is pressed, it is reversed the state of the relay contacts.

⚠ ⌐‾

WARNING: This option modifies the state of the relay and this could provoke undesired effects in the case that any device be connected to the contacts of the relay.

*Warning mode*

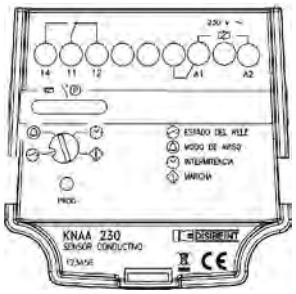
FIXED

(Fixed: led Ⓟ ON; Intermittent: led Ⓟ OFF). When accessing to this option, the led Ⓟ shows the state of the adjustment. Each time the PROG push-button is pressed, the adjustment switches between the two possible states.

*Intermittence period (T)*

1s

If the warning mode is FIXED, when accessing to this option the led Ⓟ keeps on flashing, showing that this option is not available. If the warning mode is INTERMITTENT, when accessing this option the led Ⓟ emits as many flashes as the number of seconds adjusted in the timer, between 1 and 3 seconds. Each time the push-button is pressed, the time value increases in 1 second, except when the value is 3 that moves to 1. If it is pressed longer than 3 seconds, the time value moves to 1.




*Run*

Normal operation mode.
The state of the led Ⓟ matches with the state of the relay contact (led ON = relay activated).

## Assembly conditions

Position: The sensor must be placed at bottom of the dual chamber tank where you want to detect a possible leak (see figure 1).

Installation: Fix the bracket to a firm element and introduce the head pressing frontally taking care of leave the gland in the position that allows to connect the necessary cabling. Fix the locking piece.

Electrical cable: Use an appropiate cable to the load that will support the relay. It is convenient that the gland close fully the electrical connection cable and it is essential in the case that it could exist environmental humidity or it is installed outdoors. In these cases, make a loop in the cable to provide the elimination of the accumulated drops (see figure 2).

Sensor cable: A male connector M12 is supplied in order to connect the ampifier to the sensor NS2R.

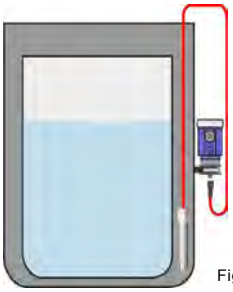


Figure 1

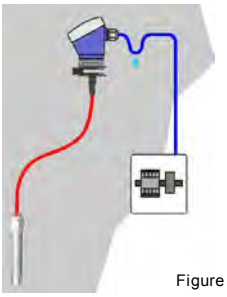
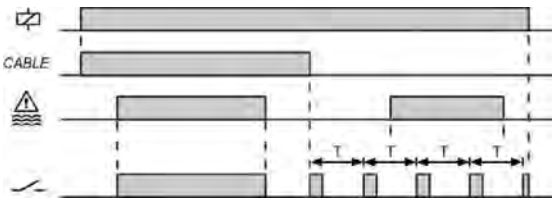


Figure 2

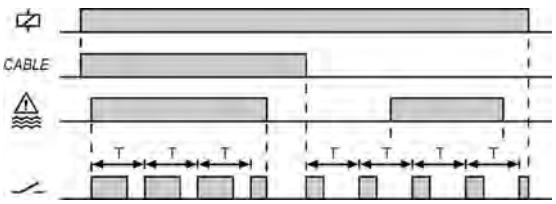
## Operating diagrams

*FIXED*



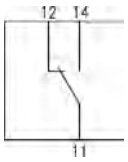

*Warning mode:* Fixed
*Relay contact:* NO
*Timing while detects:* Does not apply
*Timing with cable breaks:* 1 second

*INTERMITTENT*




*Warning mode:* Intermittent
*Relay contact:* NO
*Timing while detects:* 1, 2 or 3 seconds
*Timing with cable breaks:* 1, 2 or 3 seconds

## Output relay

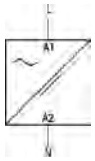
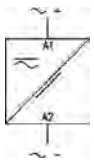
| | | KNAA |
|---|---|---|
| | |  |
| Resistive load | AC | 6 A / 250 V |
| | DC | 0,2 A / 200 V<br>6 A / 24 V |
| Inductive load | AC | 3 A / 250 V |
| | DC | 0,12 A / 200V<br>3 A / 24 V |
| Mechanical life | | > 30 x $10^6$ operations |
| Max. mechanical operations | | 72.000 operations / hour |
| Electrical life at full load | | 360 operations / hour |
| Contact material | | AgNi 0.15 |
| Maximum voltage | | 400 VAC |
| Operating voltage | | 400 VAC |
| Volt. between changeovers | | 1000 VAC |
| Voltage between contacts | | 1000 VAC |
| Voltage coil/contact | | 4000 VAC |
| Distance coil/contact | | 8 mm |
| Isolation resistance | | > $10^4$ MΩ |

## Constructive and enviromanetal data

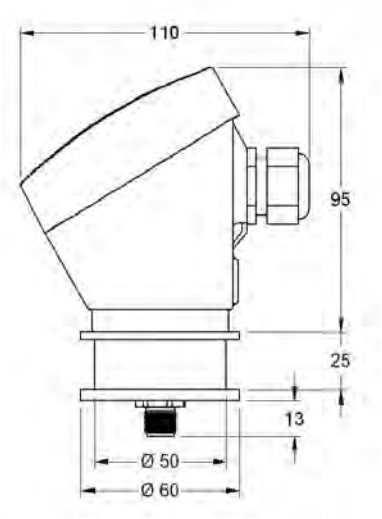
| | KNAA |
|---|---|
| Voltage phase-neutral | 300 V |
| Overvoltage category | III |
| Shocking voltage | 4 kV |
| Pollution degree | 2 |
| Protection class | IP 20 |
| Storing temperature | -50..+85ºC |
| Operating temperature | -20..+50ºC |
| Humidity | 30..85% HR |
| Housing | Cycoloy - Light Grey |
| Socket | Lexan - Light Grey |
| Leds window | Lexan - Transparent |
| Buttons and terminal blocks | Technyl - Dark Blue |
| Terminals | Nickled brass |

Designed and manufactured under EEC normative.
Directives referred:
Electromagnetic compatibility: EMC 2004/108/EEC.
Low voltage: LVD 2006/95/EEC.
Hazardous substances: 2011/65/EEC
Plastics: UL 91 V0

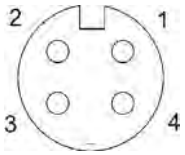
## Supply voltage

| | KNAA | |
|---|---|---|
| | | AC/DC |
| |  |  |
| Galvanic isolation | 4000 v | 2500 v |
| Frequency | 50 / 60 Hz | - |
| Operating margins | ±10..-15% | - |
| Positive | - | Terminal A1 |
| Protected polarity | - | Yes |

## Dimensions



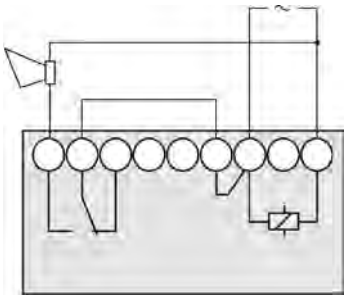

## Electrical connection




Male connector M12

| | | |
|---|---|---|
| 1 | BROWN | NS2R (without polarity) |
| 2 | WHITE | |
| 3 | BLUE | n/c |
| 4 | BLACK | |

## Example of wiring connection



## Accesories

| | Bracket |
|---|---|
| |  |
| Material | PVC |
| Dimensions | Ø inner 50 mm. |

# SENSORS FOR LEAK DETECTION

The NCAR detector receives the signal of the presence of a leak through the sensor to which it is connected. The choice of the appropriate sensor depends on the characteristics of the liquid:

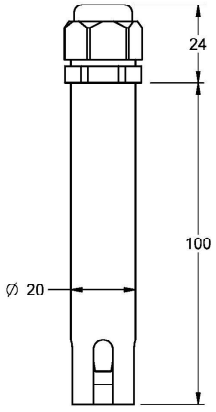
- Conductive liquids (wastewater, dissolved chemicals, etc.): NS2R Sensor
- Non-conductive liquids (fuels, hydrocarbons, etc.): IMNCR 70 Sensor. This sensor can also be used in conductive liquids.

The chemical compatibility between the manufacturing materials and the liquid to be controlled is not essential in this application since, under normal conditions, both parts will not be in contact, which means that the sensor does not have to be manufactured with specific technical materials, without making the installation more expensive. At the time of spillage, it is essential to ensure detection at the expense of the sensor element being damaged.

## Conductive method

## NS2R

· AISI316 stainless steel electrodes, 5 mm in diameter.
· M12 aerial connector, female.
· Cable characteristics and length: see table below.

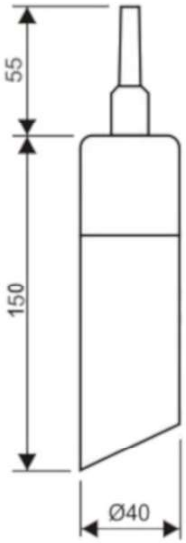



## Non conductive method

## IMNCR 70

· Float and stop in PP. Ø12 tube, PVC.
· M12 aerial connector, female.
· Cable characteristics and length: see table below.

Inside view




| | |
|---|---|
| Cable type | PVC. 2 x 0,50 mm² |
| Code and length<br>Add reference to chosen sensor | ... 01 : 1 metro<br>... 02 : 2 metros<br>... 05 : 5 metros<br>... 10 : 10 metros |
| Other lengths | On demand |



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