

**3L-NP**

**Liquid Leak**

**Non-Locating Alarm Panel**

**User's Guide**

## **ELSA: 3L-NP Liquid Leak Non-Locating System User's Guide**

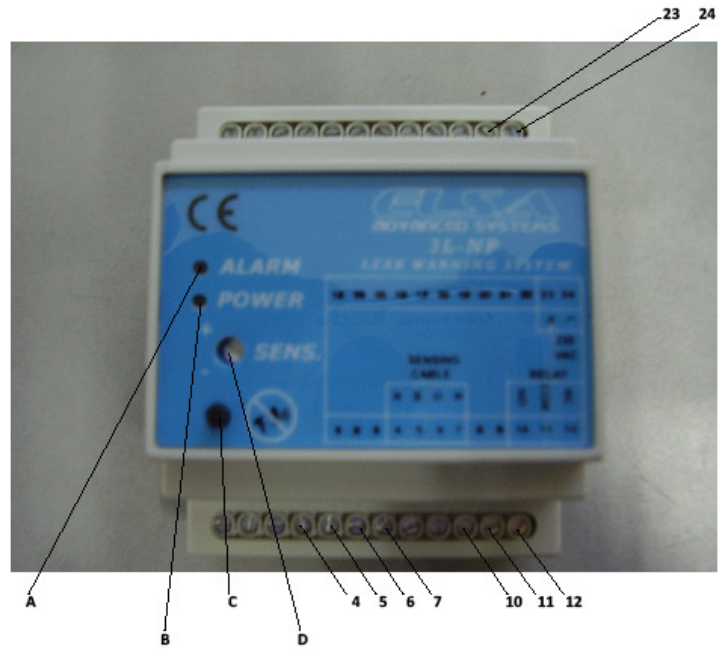
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### 1. 3L-NP control panel – Turning ON

- Connect all jumper cable, sensing cable, power supply cable, relay contact cable all are connected.
- Switch ON AC Power to 3L-NP.
- Check 3L-NP is TEST mode:
  - an audible alarm/buzzer sound,
  - LEDs for “ALARM” & “POWER” turn on to test its functionality.
- Check green LED for “POWER” is ON & red LED for “ALARM” is OFF after self-test completed under normal condition (no fault).

2. All wires connection details:



3L-NP Outlook Diagram

The below are the pin number assigned as indicated (as per 3L-NP Outlook Diagram):

1. Not in use.
2. Not in use.
3. Not in use.
4. Sensing cable (Belden 8723) – Red.
5. Sensing cable (Belden 8723) – White.
6. Sensing cable (Belden 8723) – Green.
7. Sensing cable (Belden 8723) – Black.
8. Not in use.
9. Not in use.
10. Relay – NO.
11. Relay – Com.
12. Relay – NC.
13. Not in use.
14. Not in use.
15. Not in use.
16. Not in use.
17. Not in use.
18. Not in use.
19. Not in use.
20. Not in use.
21. Not in use.
22. Not in use.
23. 230VAC Power Supply – Neutral.
24. 230VAC Power Supply – Live.

Refer to 3L-NP Outlook Diagram:

**Point A** – Red LED for “ALARM”.

- Turns ON when there is a leak (continuously) or cable break (blinking).

**Point B** – Green LED for “POWER”.

- Remains ON when there is a supply of 230VAC Power Supply.

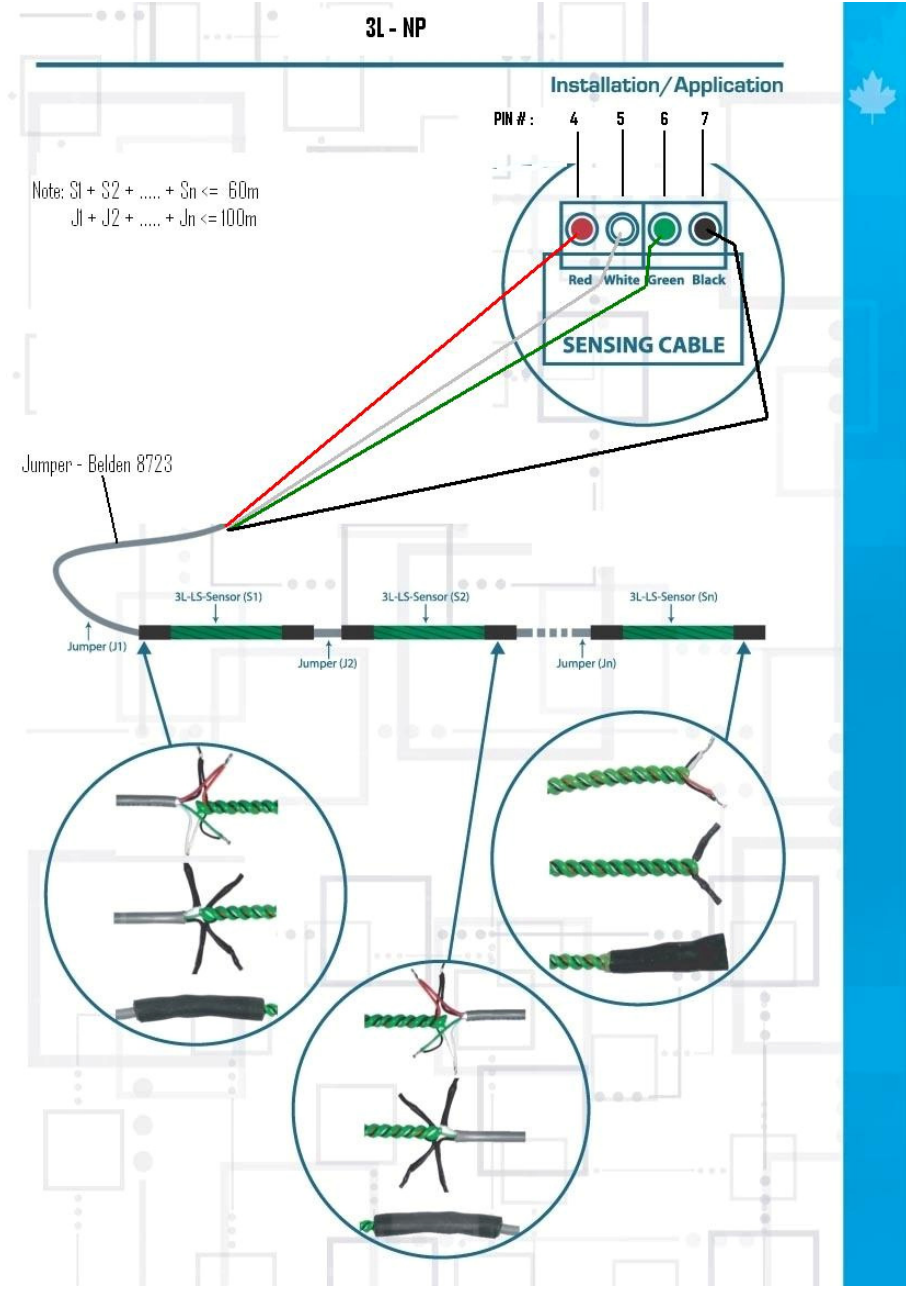
**Point C** – “Silence Button” for Buzzer/Alarm.

- The buzzer sound when there is leak or cable break.
- Press this Silence Button to silence the buzzer if necessary.

**Point D** – Liquid Leakage Sensitivity Level Adjustment.

- Turn anti-clockwise all the way to achieve most sensitivity level (about 20mm length of tap water) to detect liquid leakage.
- Turn clockwise all the way to achieve least sensitivity level (about 200mm length of tap water) to detect liquid leakage.

3. Sensing cable & jumper cable (Belden 8723) connection details with normal end-termination method.



#### 4. Liquid Leakage

- Leak Detection/Simulation:
  - Adjust sensitivity level to a desire level.
  - Pour some drop of liquid (**to simulate liquid leakage**) on the flooring to simulate a Leak.
  - Check red "Alarm" LED turns ON.
  - Check Buzzer continuous sound.
  - Relay/Dry Contact activated.
- Leak Detection/Simulation End:
  - Dry the cable and removed all liquid.
  - Check 3L-NP clearing the fault automatically and the "Alarm" LED turns OFF, Buzzer stops sounding.



## 5. Cable Break

- Cable Break Detection/Simulation:
  - Disconnect the end termination points for “Red & Black” or “White & Black” wires couple pair or BOTH.
  - Check red “Alarm” LED turns ON and blinks.
  - Check Buzzer intermittent sound.
- Cable Break Detection/Simulation end:
  - Reconnect end termination points.
  - Check 3L-NP clear the fault automatically and “ALARM” LED turns OFF.
  - Check Buzzer turn to Silence.
- Actual Cable Break Occur:
  - Check all 4 wires connections on sensing cable for continuity.
  - Check the entire cable length for a cut or shearing which cause cable break.
- During Cable Break, 3L-NP still able to detect liquid leakage.

## 6. Tag or Label for Sensing Cable:

- It is recommended to place 3m per tag or label.



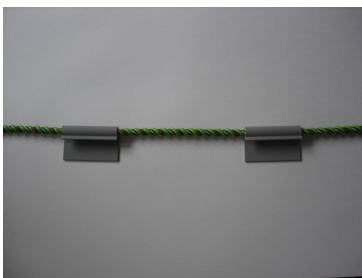
## 7. Male/Female Connector for Sensing Cable

- Male/Female connector is an option to connect all sensing cable and jumper.



## 8. Hold Down Clip for Sensing Cable:

- It is recommended to place hold down clip with a spacing of 1m per clip.
- For corner or any bending angle area, use more clips per 1m.



### 9. Troubleshooting

- Liquid leakage is detected when there is no obvious liquid presence. The possible reasons are as follows (it is highly recommended to replace the affected section):
  1. The sensing cable was badly contaminated by some chemical for unknown reason.
  2. The sensing cable was coated with glue, epoxy and paint accidentally.
  3. The 2 black sensing wires are in contact or not isolated properly.
- Use a bright led torch light to identify the location of the physical liquid leakage area which is more visible by naked eye. Some leakage is difficult to be observed due to very small volume of liquid presence and the environment is too dark.
- Cable break is detected where no visible wire cut externally is observed:
  - Check the 4 wires continuity by a multi-meter.
  - Check the 4 connection points of the leader cable to the control panel are secured properly.

### 10. Maintenance

- It is recommended to conduct quarterly check on ELSA leak detection system performance by authorized ELSA distributors/installers.
- During quarterly checking and maintenance:
  - Conduct check list as per page 11 – 14 (under 11. Testing & Commissioning Check List).
  - Check physically on the sensing cable surface cleanliness and free from any chemical contact.
- For any parts replacement or extension, ELSA local distributors offer ex-stock and will provide an immediate turnaround service to meet the requirements.

### 11. Manufacturing product information and contact

- [www.elsaadv.com](http://www.elsaadv.com)
- [enquiry@elsaadv.com](mailto:enquiry@elsaadv.com)

**12. Testing & Commissioning Check List**

Test & Commissioning Check List

Project name : \_\_\_\_\_

Location or site name: \_\_\_\_\_

Customer name: \_\_\_\_\_

ELSA product model: \_\_\_\_\_

Installer completion date: \_\_\_\_\_

Installer company name: \_\_\_\_\_

Installer name & designation: \_\_\_\_\_

Installer signature: \_\_\_\_\_

Approval Conducted By:

Customer's Representative: \_\_\_\_\_

Representative name & designation: \_\_\_\_\_

Representative signature: \_\_\_\_\_

Check and approve date: \_\_\_\_\_

Remark: \_\_\_\_\_

Function Testing:

- While the AC power supply is still 'ON', Press & Hold "Silence Button" more than 8 seconds to reset 3L-NP and conduct self-test mode.

**Functioning    Approved**

1.	Check buzzer sound and audible level.		
2.	Check "ALARM" & "POWER" LEDs switch-on.		
3.	Check Dry Contacts activate.		
4.	Check the system is operating normally (under no fault condition). Red "ALARM" LED is OFF and green "POWER" LED is ON.		
5.	Check Hold down clip fixed properly and no glue attached to sense cable. Also check Tag/Label is installed and marking precisely with distance on the sensing cable.		

Remarks: \_\_\_\_\_

Leak simulation:

- Place about 20mm to 200mm (depend on sensitivity level adjustment) of water in continuous contact on the sense cable.

**Functioning    Approved**

1.	Check "ALARM" red LED switches ON.		
2.	Check Buzzer continuous sound, acknowledge it with Silence Button.		
3.	Check Relay/Dry contact activated.		

- Remove and dry the water on the sense cable by dry cloth.

**Functioning    Approved**

1.	Check "ALARM" red LED switches back to OFF.		
2.	Check Relay/Dry contact de-activated.		
3.	Check & simulate leak at different points on the sense cable. If necessary, adjust the leak sensitivity to meet the site requirement.		

Remarks: \_\_\_\_\_

Cable Break simulation:

- Disconnect one or two wires connection at the sensing cable connection points of the control panel unit.
- Alternatively, disconnect a pair or all 4 wires on the sensing cable end point if end-termination method is in use.

**Functioning      Approved**

1.	Check "ALARM" red LED is blinking.		
2.	Check Buzzer intermittent sound, acknowledge it with Silence Button.		
3.	Check Relay/Dry contact activated.		

- Re-connect back all the sensing cable connection points which were previously disconnected.

**Functioning      Approved**

1.	Check "ALARM" red LED switches back to OFF.		
2.	Check Relay/Dry contact de-activated.		

Remarks: \_\_\_\_\_

~ END ~