LEVEL

ELZ DIAPHRAGM-TYPE LEVEL SWITCH

OPERATING MANUEL

Information in this manual is reviewed and completely reliable. Responsibility is not assumed due to any typing error. Products in this manual are available only for information purpose and they may be changed without notice.



Model

For Solid Materials

- **ELZ 11**
- **ELZ 21**
- **ELZ 31**

Advantages

- Cost-effective
- Easy installation and commissioning
- Fast delivery

Important Notes

Used Symbols :

: Caution **: Note** **: Disposal**

- Please read this manual carefully before installation of the **level switch**. User is responsible for accidents and losses arising from failure to comply with the warnings in this manual.
- In the event that **level switch** is broken, take measures in order to prevent accidents and losses which can occur in its system.
- There is not any fuse and circuit breaker on the instrument; they should have been added to the system by the user.
- This manual should be stored in an easily accessible place for subsequent use.
- The manufacturer's liability cannot exceed the purchase price of the device according to the law.
- Do not make any modification on the instrument and do not try to repair it. Reparation should be made by authorized service staff.
- Do not operate the system before making assembly in compliance with the assembly chart related to the instrument.
- Products which do not contain label and serial number are considered to be excluded from the warranty scope.
- The instrument's useful life, determined and announced by the ministry, is 10 years.

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1. General Information

1.1. Material Acceptance

Check that there is no damage on the packages during the transportation immediately after the material acceptance. If packages are damaged, open the packages immediately and check whether products are affected or not, if there is any damage, send your complaint report to the transporter company and its photocopy to the address of our company.

1.2. Information About Areas of Application

ELZ Level control with membrane is the most economical method in measurement of level of bulk material in the storage. It can be used in open and non-pressure tanks. ELZ can check full, empty and loaded situations of powdered, dusty, corny, granular, grained bulk materials in the grain elevator. It is appropriate for using in the particles in 0,3 and 2,5 t/m^3 and up to max. 30 mm. Membrane should contact with checked material certainly.

Areas of Application :

Sugar, Hazelnut, Clay, Sunflower Seed, Coffee, Various Granules, Wheat, Bauxite, Ceramic, Legumes, Cereal, Fish Feed, Sand, Pebble, Isolation Materials, Corn, Rice .

Ambient Conditions: Relative Humidity: 0-98 %RH **Ambient temperature:** 60 °C (It is not used under -20 °C)

1.3. Working principle

As long as material, is poured to the grain elevator, accumulates, membrane is closed. Material pushes membrane back with composed press and mechanism pushes the contact.

Contact gives audible alarm or it is used for stopping filling mechanism of grain elevator. When material precipitates and reduces, contact reverts back. Precision setting is made during assembly by sliding the mechanism.

1.4. Technical Specifications and General Applications

Installation	Vertical
Material	Fiber reinforced plastic. Opt. Aluminum Casting
Diaphragm	Neoprene, Viton, Stainless Steel
Working Temperature	(-) 20...(+) 80 ° C ELZ 11 with NBR Diaphragm (-) 20...(+) 150 ° C ELZ 21 with Viton Diaphragm (-) 20...(+) 200 ° C Rust. ELZ 31 with Stainless Steel Diaphragm
Protection Class	IP 40 IP 53 (If the mounting position of the compensating filter is downwards) IP 65 (For ELZ31)
Max. Working Pressure	3 bar, NBR, for Viton Diaphragm 1 bar Stainless Diaphragm for
Weight With Box	525 g. Plastic Body 990 g. Aluminum Body
Accuracy	200 g. .... 600 g. Adjustable
Electrical Connection	PG 13,5 Plastic, PG 11 Metal (ELZ31)
Contact Output	1 x SPDT 15 A / 250 VAC

General Applications

Materials Engineering and Durability

Environmentally Compatible Diaphragm Selection

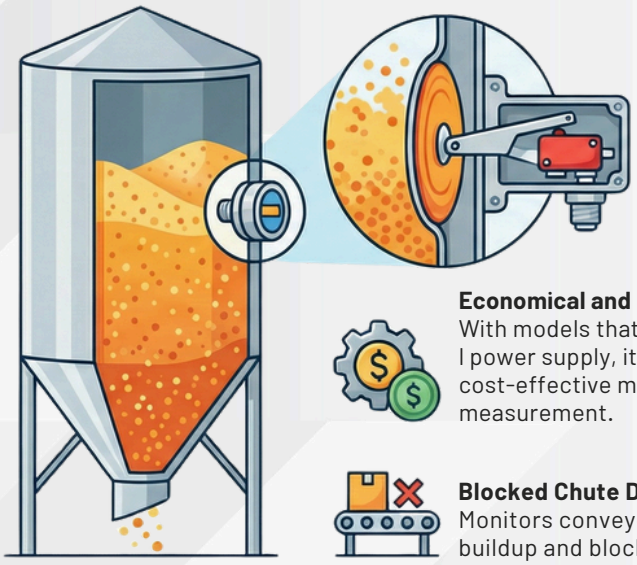


Neoprene / NBR
-20°C/+80°C
Grains, Feed Materials

Viton (FKM)
-20°C/+150°C
Harsh chemicals, high temperatures

Stainless Steel
-20°C / +200°C
Food grade (FDA compliant)

Working Mechanism and Advantages



Pressure-Based Activation
Physical force exerted on the diaphragm by the material immediately triggers the internal micro-switch.

Economical and Mechanical Solution
With models that do not require an externa l power supply, it is one of the most cost-effective methods for solid level measurement.

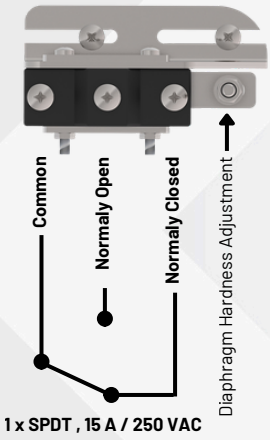
Operating Temperature Range -20°C to +200°C
Engineered with diverse material options to ensure reliable performance across extreme temperature conditions.

Blocked Chute Detection
Monitors conveyor chutes for material buildup and blockage, helping to avoid unplanned shutdowns and equipment failure.

IP65 Protection Class
With its dustproof and waterproof housing, it operates in the most demanding factory conditions.

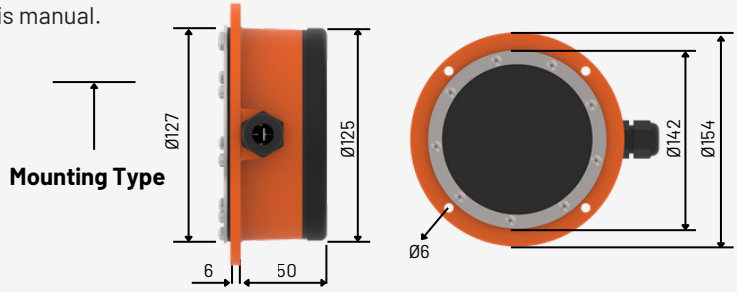
1.5. Electrical Installation

Make the electrical connection of the instrum ent according to details on its label, table and cable figures in this manual.



Product can be adjusted from the default position of press sensitivity on the diaphragm.
(+) Press sensitivity increased
(-) Press sensitivity decreased
Adjustment should be made according to bulk material.

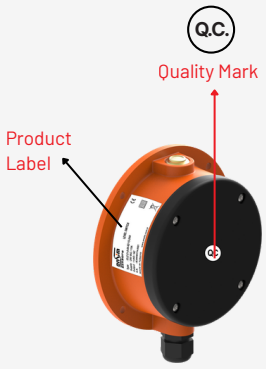
Dimensions



1.6. Label Information

- **Product Label**





- **Packaging Label**



- **Quality Mark**



1.7. Content of Package

Please check whether you have taken delivery of below listed content completely or not and check its conformity with criterions in your order.

- Level switch
- This operating manual

1.8. Target Group

This operating manual has been prepared for qualified technical personnel.

1.9. Security Notes

Following notes should be taken into consideration in order to avoid dangers which can occur on the operator and around the ambient:

Installation, operation and maintenance of this instrument should be made only by people who have read the operating manual and who are knowledgeable about work safety!
It should be complied with work safety, accident prevention regulations and national installation standards.
Product should be used only within the scope of stated specifications!
You can assemble the instrument only when pressure is not available!

2. Installation

2.1. General Notes

Installation of the instrument must be carried out only by authorized and qualified personnel.
Do not apply excessive force to the instrument during installation.
Do not operate the **level switch** at pressures exceeding the recommended operating pressure.
The contact adjustment of the instrument is sensitive. Do not carry the device by its cable and take care to prevent any damage.
Ensure that no magnetic particles are present in the operating environment.
Unless otherwise specified, the maximum operating pressure must not be exceeded.

2.2. General Installation Stages

· Carefully remove the **Level switch** from its packaging.
· Check whether the material applied to the **level switch** is suitable for the intended application. If it is not suitable, please contact the manufacturer.
· Then follow the instructions given below according to the design and installation structure.

2.3. Special Notes

· After installation, ensure that there is no mechanical stress on the shaft. Any mechanical stress may cause a shift in the characteristic curve.
· The **level switch** must be mounted perpendicular to the tank wall or conveyor.
· If the device is installed outdoors and there is a risk of lightning, appropriate protective measures must be taken.

2.4. Installation For Mechanical Connections

· Select a suitable suspension bracket using an appropriate chain or rope.
· Ensure that the suspension mounting surface is clean and smooth.
· Assemble the instrument manually.
· The tilt sensor must be installed at a 90° vertical angle. During forward and backward linear movement, the contact angles should be checked.

2.5. Order Form : You may use the sample models as a reference for coding.

1	MODEL ELZ		
	Standard NBR Diaphragm - **11**		Standard Viton Diaphragm - **21**
			Standard Stainless Steel Diaphragm - **31**

2	CERTIFICATE	
	None - **0**	(EN10204-3-1) Material Certification - **1**

3	HOUSING MATERIAL	
	Plastic , PBT B03p - **001**	Special - **x**
	Aluminium , B03x - **501**	

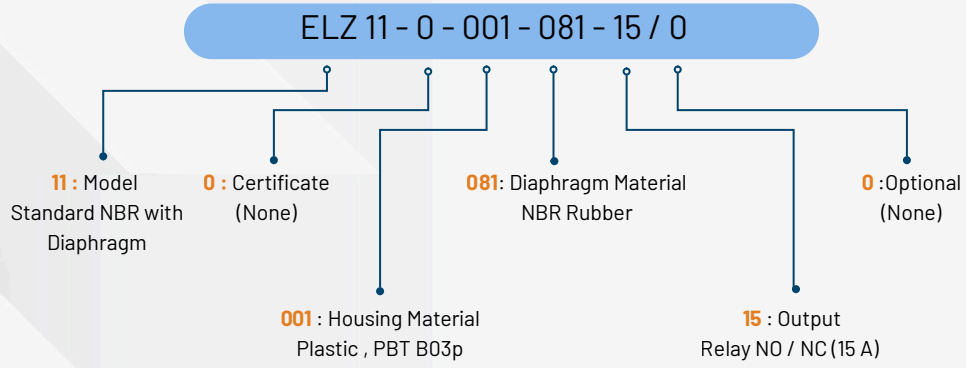
4	DIAPHRAGM MATERIAL	
	NBR Rubber - **081**	304 Stainless Steel - **001**
	Viton - **082**	Special - **x**

5	OUTPUT	
	Relay NO / NC (15 A) - **15**	Special - **x**

6	ELECTRICAL CONNECTION	
	Metal PG 11 Chrome Brass - **05**	Plastic PG 13.5 Black - **24**
		Special - **x**

7	OPTIONAL	
	None **/ 0**	Special **/ x**

SAMPLE		
ELZ 11-0-001-081-15/0	,	Level Switch , ELZ 11 , with NBR Diaphragm , NO / NC
ELZ 21-0-001-082-15/0	,	Level Switch , ELZ 21 , with Viton Diaphragm, NO / NC
ELZ 31-0-501-15-05/0	,	Level Switch , ELZ 31 , with Stainless Steel Diaphragm , NO / NC



2.6. Cautions

For the proper and trouble-free operation of your level switch, please pay attention to the following points.



Contact between the cable and steam may lead to insulation problems.



Keep away from magnetic fields; otherwise, the switch may be damaged and may not operate properly.



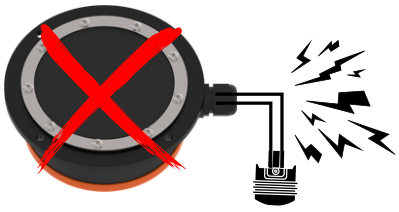
Do not drop the switch or expose it to impacts. Otherwise, its characteristics may change.



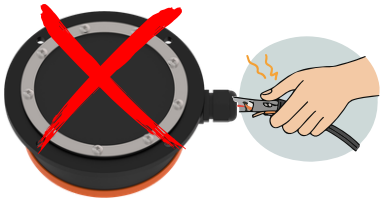
Vibration may cause instability



Do not connect the cable connection points below the liquid level; otherwise, insulation problems may occur.



Direct connection to the motor may cause excessive current, which can burn the relay of the switch.



Do not pull the device by the cable. Otherwise, its characteristics may change.



Do not remove the plastic parts of the bottom of the switch body , do not loosen.



Please avoid using with liquids which damage materials of parts ,otherwise quality can not be maintained accurately



Do not install the switch in an inverted position. Otherwise, its characteristics may change.

3. Failure Detection

Breakdown	Probable cause	Failure detection\correction
No relay output / Continous relay output	-Contact might be broken / burned. -Connection angle might not be vertical. -Supply / Supplied power might be exceeded maximum value. -Swich sensitivity might not adjusted properly.	-Inform authorized service -Make the connection angle vertical. -Inform authorized service. -Check switch sensitivity adjustment.
Unstable Switch	-Physical damages on product. -Swich sensitivity might not adjusted properly. -The effect of vibration on product.	-Inform authorized service -Check switch sensitivity adjustment. -Vibration should be prevented or product should be mounted to a different point.
Fractured Diaphragm	-Bulk material is pointed and sharp. -Bulk material is not chemically compatible with diaphragm material.	-Equipment is not suitable for sharp and pointed materials. Please contact with manufacturer for model change. -Switch to appropriate diaphragm material.
Broken or dissolved housing	-Physical damage is received from working environment. -Housing damaged from chemical effect	-Outer physical effects must be prevented. Change of equipment position is advised. -Housing type can be changed for more protection against outer effects, please contact with manufacturer with determined environment conditions.

If you find an error, try to eliminate it by using this table or send the instrument to our service address for repair.

The instrument should be repaired only by authorized service!

4. Disassembly of Instrument

The device must be removed only when there is no flow and no pressure.

5. Service

The device does not require maintenance. If desired, it can be cleaned using mild cleaning solutions.

6. Recalibration

During the long service life of a tilt sensor, shifts in the switch point may occur. In such cases, recalibration is recommended. The calibration can be performed by your technical personnel, or the device can be sent to us for recalibration.

7. Repair - Manufacturer Address

If irreparable breakdowns occur, the instrument should be sent to us for repair purpose. Before this, the instrument should be cleaned carefully and packaged so as not to be broken. Furthermore, you should also add a detailed explanation which describes the breakdown while instrument is sent. If your instrument contacts with harmful substances, decontamination report should be also sent additionally. In the event that instrument does not have any decontamination report or our service department has doubts about instrument, repair process will not start until an acceptable report is sent.

Service -Manufacturer Company Name and Address:

If the instrument contacts with hazardous substances, necessary measures should be taken for decontamination!

Service -Manufacturer Company Name and Address:

LONCA MAK. SAN. TIC. A.Ş. Ferhatpaşa Mah. 37 Sok. No:78/A 34888 Ataşehir - İSTANBUL / TÜRKİYE

Phone : +90 216 50 50 555 / E-Mail: lonca@ensim.com.tr Web : www.ensim.com.tr

8. Disposal

The device must be disposed of in accordance with the European Directive 2012/19/EU (Waste Electrical and Electronic Equipment – WEEE). Waste electrical and electronic equipment must not be disposed of with household waste.

If the instrument has contacted with harmful substances, special attention should be paid for its disposal!

9. Terms of Warranty

The instrument has warranty legally for 24 months after delivery date. Warranty demands are not accepted in case of inappropriate operation, damage on the instrument or any modification on the instrument.

10. Terms of Return

In the return of materials, user should send an open list related to damage or problem, malfunction of the material to be returned or its operation in the different modification, with the instrument. If it is required to return the material, used in the dangerous, corrosive or toxic fluid, in this case, used part should be cleaned very carefully. Security of personnel should be ensured. All products to be returned should be sent to our company address, which we have stated.