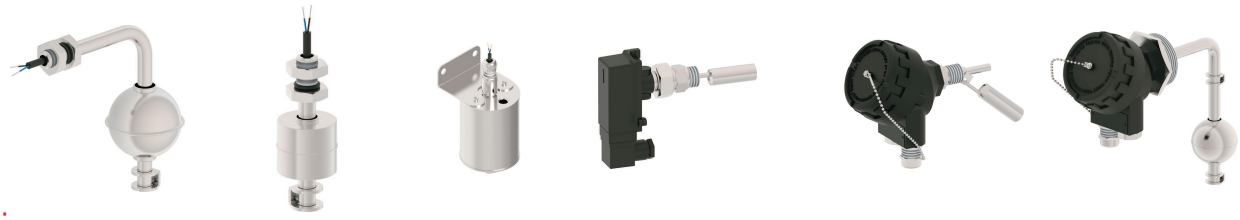
OPERATING MANUEL

Model : ELM

LEVEL SWITCH

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.



Models :

ELM31 , ELM41 , ELM51 , ELM71
ELM32 , ELM42 , ELM52 , ELM72
ELM51s
ELM61 , ELM61a , ELM61s , ELM61m
ELM62 ,
ELM63 , ELM64 , ELM64a , ELM64s
ELM81s , ELM82s

CE

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.

Table of Contents :

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 Use

ELM level switches are used for checkin level of tank. It is preferred by machine manufacturers, especially in terms of its ease ofg use and economy.
The ELM level switched can be mounted in litte places because of their mini design. The switches are made by stainless steel material and so can be used in various liquids. It should be used in allowed using medium and application areas! It is not used in the corrosive mediums, ambient with explosive and flammable material. Conformity with medium to be measured should be also taken into consideration. Responsibility is not assumed in case of inappropriate use, modification and injure, and such cases are not covered by warranty.

Areas of Application :

Machines, tanks, boilers, gas and liquid mediums, level measuring, temperature measuring...

Ambient Conditions: Relative Humidity: 5-95 %RH Ambient temperature: 70C (It is not used under -5 C)

1.3. Operating Principle

ELM level switches are used for checkin level of tank. It is preferred by machine manufacturers, especially in terms of its ease ofg use and economy. The ELM level switched can be mounted in litte places because of their mini design. The switches are made by stainless steel material and so can be used in various liquids.
When magnetic field of magnet in the float is aligned withreed sensor in the tube , it opens or closes the electric circuit.When float moves away , sensor reverts back (upon demand , drawn contact may be made).
Level informationcan be assessed with a relay circuit.

Advantages :

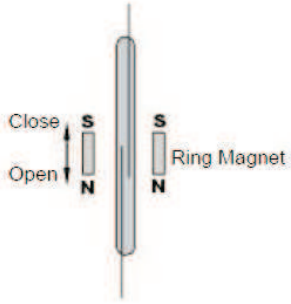
* Economic.
* Practical and easy installation.
* Fast delivery.
* Stainless steel material.

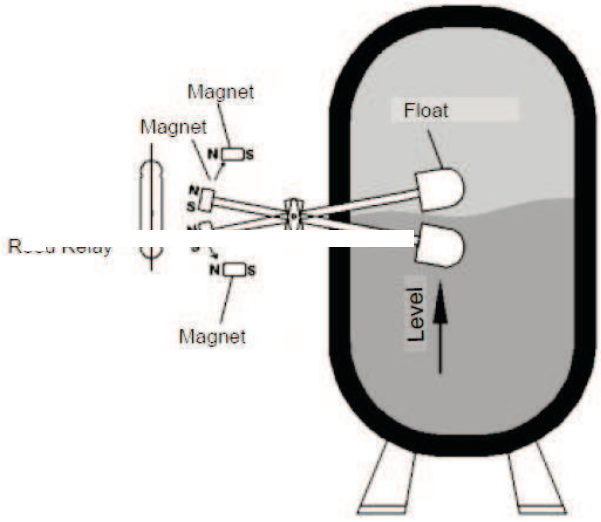
E-GSM Alarm Device - Double Entry

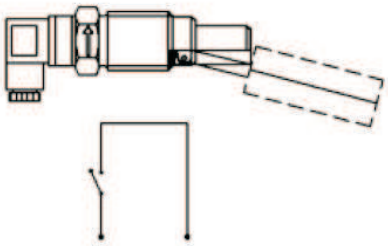
Battery or and supply

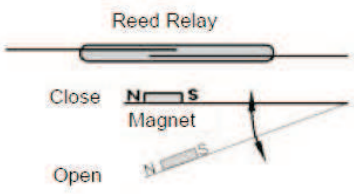
2 pcs. Lithium batteries, 12V adaptor (Incluced)

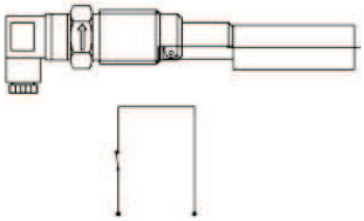
Excluding phone card.





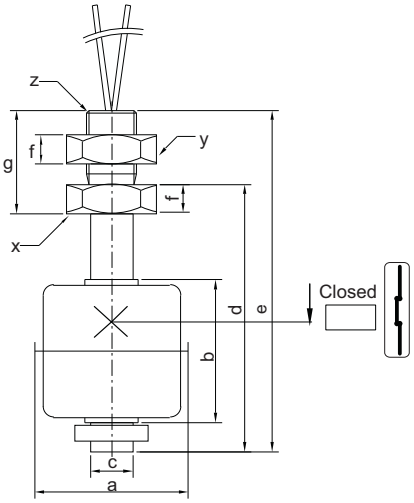


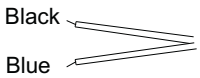




Technical Specifications :

	ELM 31	ELM 41	ELM 51	ELM 71
INSTALLITION	**VERTICAL**	**VERTICAL**	**VERTICAL**	**VERTICAL**
Float Material	304 St. St. (Std.) Opt. 316 St. St.	316 St. St.	316 St. St.	316 St. St.
Wetted Parts Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Pipe Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Float Type	S1Y	S2A	S4A/S40A	S5A
Working Temperature	Max. 125 °C	Max. 125 °C	Max. 125 °C	Max. 125 °C
Mechanical Connection	1/8" BSP or M10x1	1/8" BSP or M10x1	1/8" BSP or 1/2" BSP	3/8" BSP or 1/2" BSP
Max. Pressure (Bar)	10	30	30	30
Min. Density (g/cm³)	0.80	0.80	0.80	0.80
Electrical Connection	Cable	Cable	Cable	Cable
Number of Float	1 Std.	1 Std.	1 Std.	1 Std.
Number of Contact	1x SPST-NO	1x SPST-NO	1x SPST-NO	1x SPST-NO
Contact Current	1 A	1.5 A	1.5 A	1.5 A
Max. Contact Power	10 W / VA	50 W / VA	50 W / VA	50 W / VA
Max.Switching Voltage	200 VDC / 140 VAC	200 VDC / 250 VAC	200 VDC / 250 VAC	200 VDC / 250 VAC
Optional	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2





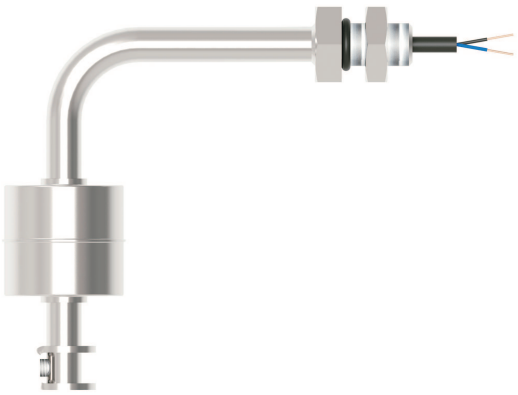
Single Contact NO

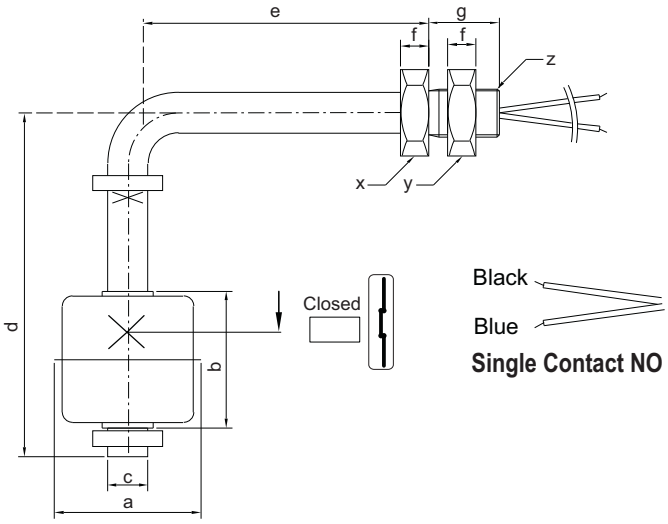
MODEL DIM.	ELM 31 Cylinder	ELM 41 Spherical	ELM 51 Spherical	ELM 71 Spherical
a	28	43	52	73
b	28	43	52	73
c	8	8	13	13
d	45	70	100	115
e	60	75	120	137
f	5	5	8	8
g	15	15	20	20
x	17Hex	17Hex	24Hex	24Hex
y	17Hex	17Hex	24Hex	24Hex
z	1/8"BSP or M10x1	1/8"BSP or M10x1	3/8"BSP or 1/2"BSP	3/8"BSP or 1/2"BSP

All dimensions are given in mm.

Technical Specifications :

INSTALLITION	ELM 32 VERTICAL	ELM 42 VERTICAL	ELM 52 VERTICAL	ELM 72 VERTICAL
Float Material	304 St. St. (Std.) Opt. 316 St. St.	316 St. St.	316 St. St.	316 St. St.
Wetted Parts Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Pipe Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Float Type	S1Y	S2A	S4A/S40A	S5A
Working Temperature	Max. 125 °C	Max. 125 °C	Max. 125 °C	Max. 125 °C
Mechanical Connection	1/8" BSP or M10x1	1/8" BSP or M10x1	1/8" BSP or 1/2" BSP	3/8" BSP or 1/2" BSP
Max. Pressure (Bar)	10	30	30	30
Min. Density (g/cm³)	0.90	0.90	0.90	0.90
Electrical Connection	Cable	Cable	Cable	Cable
Number of Float	1 Std.	1 Std.	1 Std.	1 Std.
Number of Contact	1x SPST-NO	1x SPST-NO	1x SPST-NO	1x SPST-NO
Contact Current	1 A	1.5 A	1.5 A	1.5 A
Max. Contact Power	10 W / VA	50 W / VA	50 W / VA	50 W / VA
Max.Switching Voltage	200 VDC / 140 VAC	200 VDC / 250 VAC	200 VDC / 250 VAC	200 VDC / 250 VAC
Optional	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2





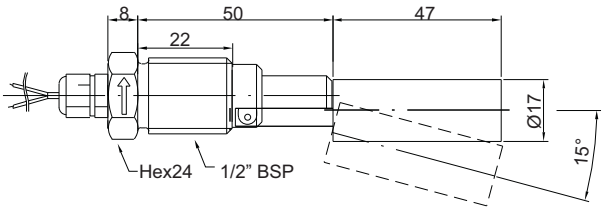
MODEL DIM.	ELM 32 Cylinder	ELM 42 Spherical	ELM 52 Spherical	ELM 72 Spherical
a	28	43	52	73
b	28	43	52	73
c	8	8	13	13
d	72	92	95	125
e	58	65	80	100
f	5	5	8	8
g	15	15	20	20
x	17Hex	17Hex	24Hex	24Hex
y	17Hex	17Hex	24Hex	24Hex
z	1/8" BSP or M10x1	1/8" BSP or M10x1	3/8" BSP or 1/2" BSP	3/8"BSP or 1/2"BSP

All dimensions are given in mm.

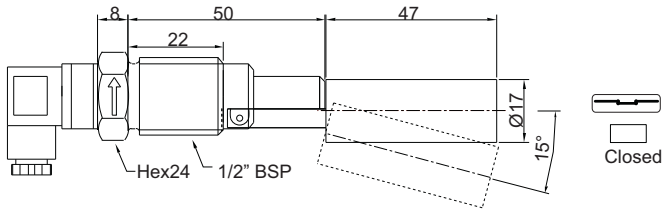
Technical Specifications :

	ELM 61	ELM 61s	ELM 62	ELM 61m
INSTALLITION	**HORIZONTAL**	**HORIZONTAL**	**HORIZONTAL**	**HORIZONTAL**
Float Material	304 St. St.	304 St. St.	304 St. St.	304 St. St.
Wetted Parts Material	304 St. St.	304 St. St.	304 St. St.	304 St. St.
Pipe Material	304 St. St.	304 St. St.	304 St. St.	304 St. St.
Float Type	S3Y	S3Y	S3Y	S3Y
Working Temperature	Max. 125 °C	Max. 125 °C	Max. 125 °C	Max. 125 °C
Mechanical Connection	1/2" BSP	1/2" BSP	1/2"BSP+Nut	1/2"BSP
Max. Pressure (Bar)	5	5	5	5
Min. Density (g/cm³)	0.90	0.90	0.90	0.90
Electrical Connection	Cable PG7	DIN43650C Socket	Cable	Clemens
Number of Float	1 Std.	1 Std.	1 Std.	1 Std.
Number of Contact	1x SPST-NO	1x SPST-NO	1x SPST-NO	1x SPST-NO
Contact Current	0.7 A	0.7 A	0.7 A	0.7 A
Max. Contact Power	10 W / VA	10 W / VA	10 W / VA	10 W / VA
Max.Switching Voltage	180 VDC / 130 VAC	180 VDC / 130 VAC	180 VDC / 130 VAC	180 VDC / 130 VAC
Optional	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2

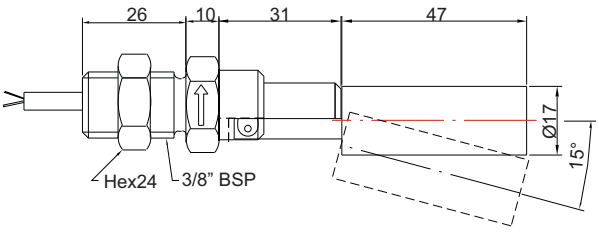
ELM 61



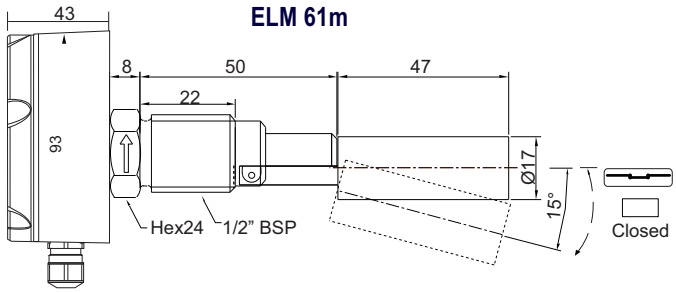
ELM 61s



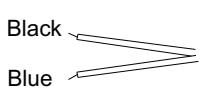
ELM 62



ELM 61m

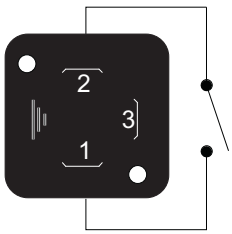


With Cable



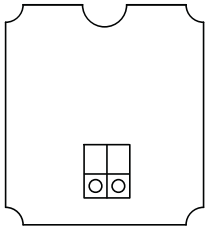
Single Contact NO

With Socket



Single Contact NO

With Clemens



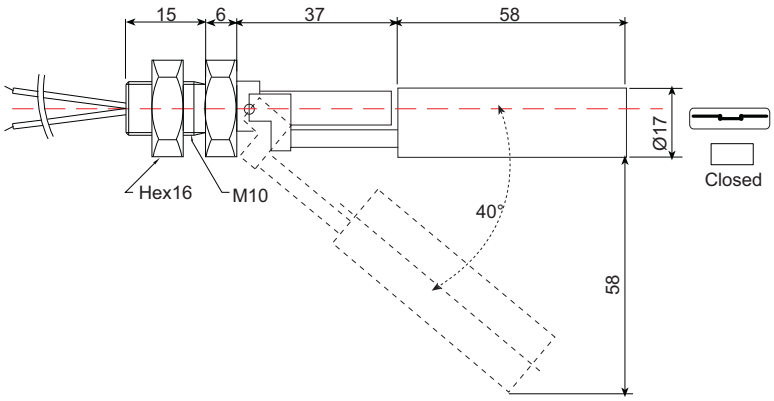
Single Contact NO

All dimensions are given in mm.

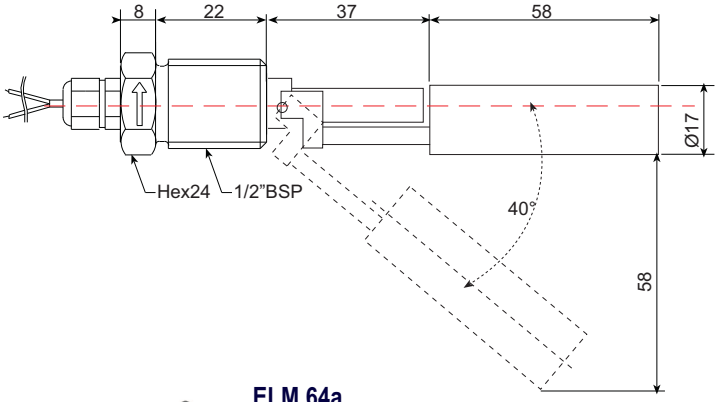
Technical Specifications :

	ELM 63	ELM 64	ELM 64a	ELM 64s
INSTALLITION	**HORIZONTAL**	**HORIZONTAL**	**HORIZONTAL**	**HORIZONTAL**
Float Material	304 St. St.	304 St. St.	304 St. St.	304 St. St.
Wetted Parts Material	304 St. St.	304 St. St.	304 St. St.	304 St. St.
Pipe Material	304 St. St.	304 St. St.	304 St. St.	304 St. St.
Float Type	S3Y-1	S3Y-1	S3Y-1	S3Y-1
Working Temperature	Max. 125 °C	Max. 125 °C	Max. 125 °C	Max. 125 °C
Mechanical Connection	M10 + Nut	1/2" BSP (Std.)	1/2" BSP (Std.)	1/2" BSP (Std.)
Max. Pressure (Bar)	5	5	5	5
Min. Density (g/cm^3)	0.90	0.90	0.90	0.90
Electrical Connection	Cable	Cable PG7	Cable PG7	DIN43650C Socket
Number of Float	1 Std.	1 Std.	1 Std.	1 Std.
Number of Contact	1x SPST-NO	1x SPST-NO	1x SPST-NO	1x SPST-NO
Contact Current	0.7 A	0.7 A	0.7 A	0.7 A
Max. Contact Power	10 W / VA	10 W / VA	10 W / VA	10 W / VA
Max.Switching Voltage	180 VDC / 130 VAC	180 VDC / 130 VAC	180 VDC / 130 VAC	180 VDC / 130 VAC
Optional	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2

ELM 63

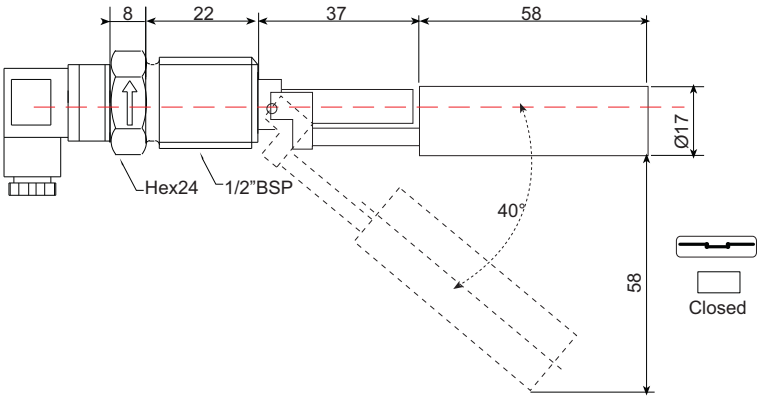


ELM 64

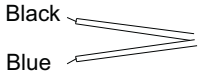


ELM 64a

ELM 64s

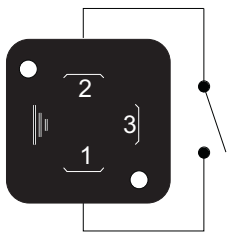


With Cable



Single Contact NO

With Socket

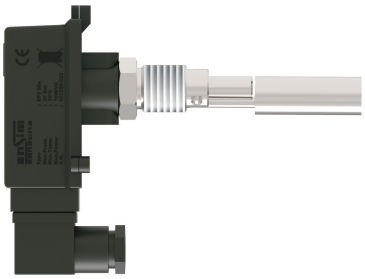


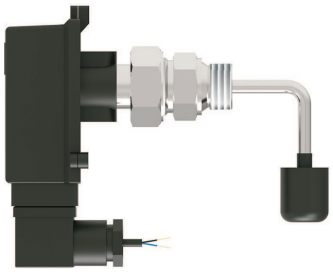
Single Contact NO

All dimensions are given in mm.

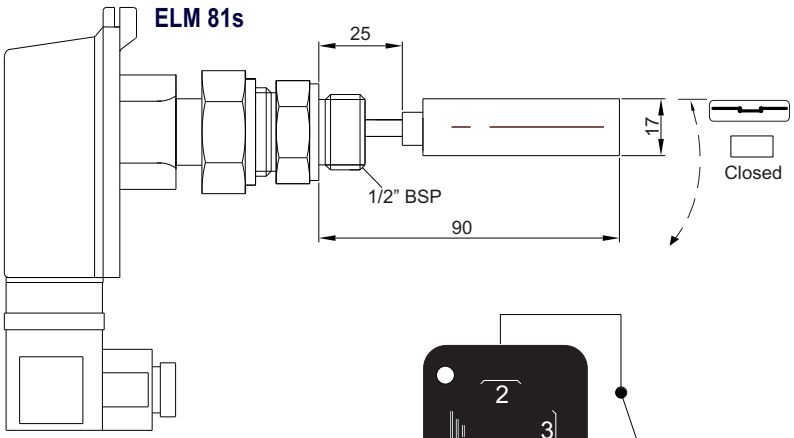
Technical Specifications :

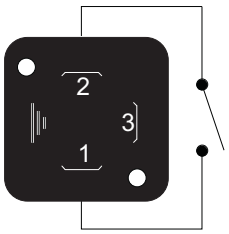
	ELM 81s	ELM 82s
INSTALLITION	**HORIZONTAL**	**HORIZONTAL**
Float Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Wetted Parts Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Pipe Material	304 St. St. (Std.) Opt. 316 St. St.	304 St. St. (Std.) Opt. 316 St. St.
Float Type	S3Y / P81	S3Y / P81
Working Temperature	(-)20 / (+) 125°C	(-)20 / (+) 80°C
Mechanical Connection	1/2" BSP / 3/4" BSP	1/2" BSP / 3/4" BSP
Max. Pressure (Bar)	5	5
Min. Density (g/cm^3)	0.75	0.75
Electrical Connection	DIN43650A Socket	DIN43650A Socket
Number of Float	1 Std.	1 Std.
Number of Contact	1x SPST-NO	1x SPST-NO
Contact Current	1 A	1 A
Max. Contact Power	10 W / VA	10 W / VA
Max.Switching Voltage	200 VDC / 140 VAC	200 VDC / 140 VAC
Optional	Liquid Level Relay SK-P2	Liquid Level Relay SK-P2





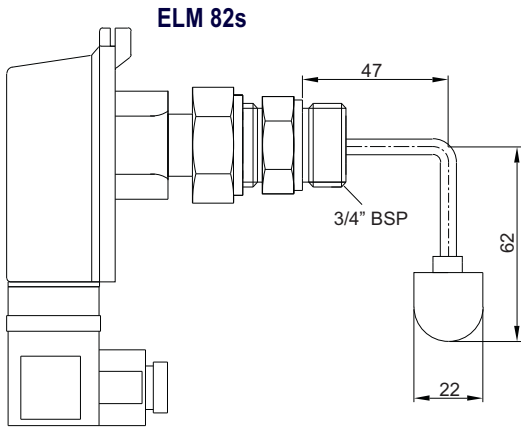
ELM 81s





Single Contact NO

ELM 82s



LEVEL CONTROL DEVICE

Power Supply	220 VAC, 2.8 VA
Output	2 pcs.5A/250 VAC Relay (Start/Stop)
Working Temperature	(-) 20 (+) 70 °C
Dimensions	72 x 72 mm
Input	Contact information come from ELM
Isolation	Input and output are isolated

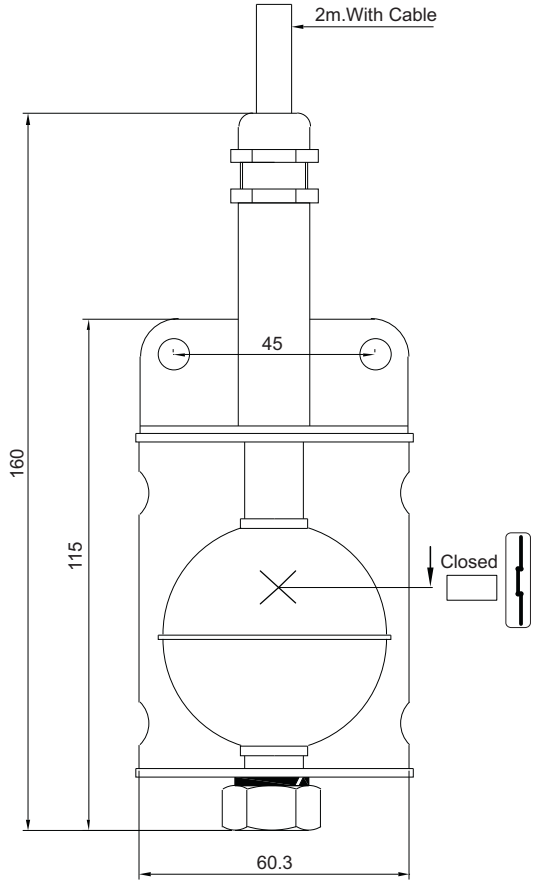
SK-P2
72x72 mm

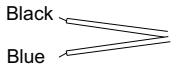
All dimensions are given in mm.

Technical Specifications :

ELM 51s

INSTALLITION	VERTICAL
Float Material	304 St. St. (Std.) Opt. 316 St. St.
Wetted Parts Material	304 St. St. (Std.) Opt. 316 St. St.
Pipe Material	304 St. St. (Std.) Opt. 316 St. St.
Float Type	S40 A
Working Temperature	Max. 125 °C
Max. Pressure (Bar)	30
Min. Density (g/cm^3)	0.80
Electrical Connection	Cable
Number of Float	1 Std.
Number of Contact	1x SPDT-NA/NA
Contact Current	1.5 A
Max. Contact Power	50 W / VA
Max.Switching Voltage	200 VDC / 250 VAC
Optional	Liquid Level Relay SK-P2





Single Contact NO

1.5. Target Group

This operating manual has been prepared for qualified technical personnel.

1.6. 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!

All dimensions are given in mm.

1.7. Content of Package

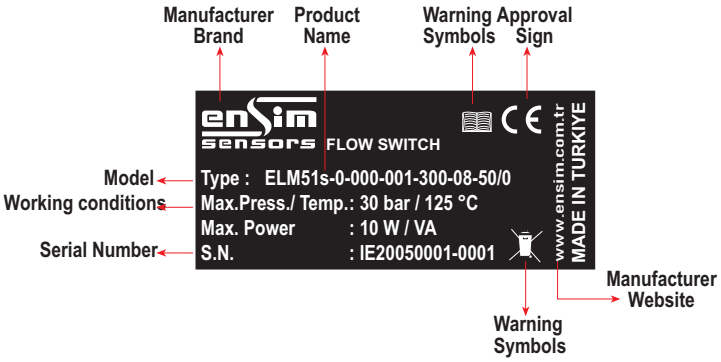
Please check whether you have taken delivery of below listed content completely or not and check its conformity with criterions in your order:

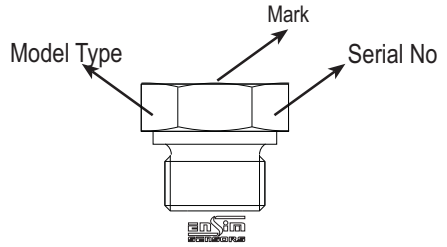
*Level switch

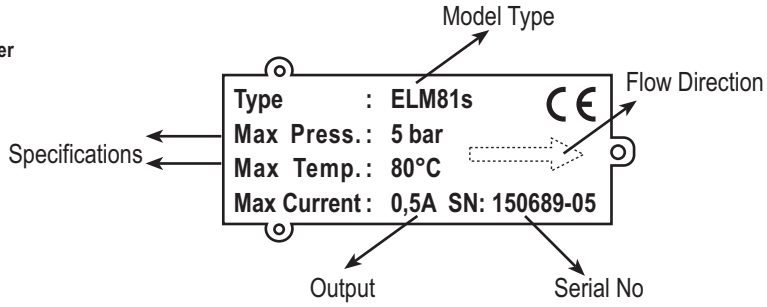
*This operating manual

1.8. Label Information

Product Label :







2. Installation

2.1. General Notes

Installation of the instrument should be made only by authorized personnel.

Do not apply force to the instrument during the installation!

Do not use the level switch with a greater pressure than recommended pressure.

Do not forget that instrument is precise, carry it carefully and prevent to be damaged.

It should be guaranteed that there are not any magnetic particles.

2.2. General Installation Stages

*Remove level switch from the box carefully

*Check whether gasket is appropriate for fluid or not. If is not appropriate, contact with the producer.

*Then, apply below mentioned explanations according to structure of the design.

2.3. Special Notes

*Please ensure that there is no mechanical stress on the shaft following installation. Such case will cause slipping in thecharacteristic curve.

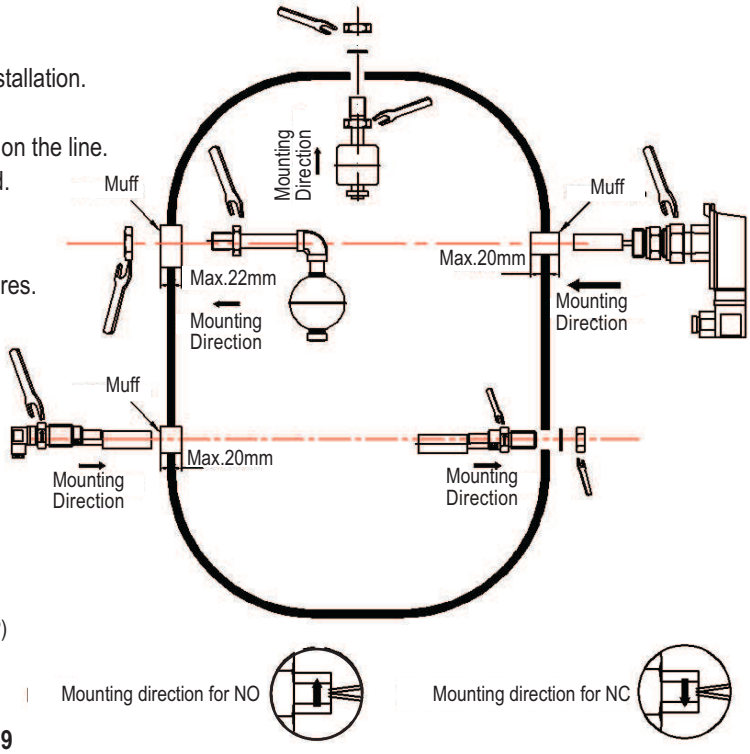
*Level switch should be placed in completely vertical or horizantal position on the line.

*Allocate valve certainly in the process connection while instrument is used.

*Allocate blowdown valve under bottom flange for blowdown.

*If instrument is mounted outside and if there is any danger of lightning or excessive pressure, take preventive measures by taking necessary measures.

*In the operating conditions, level switch may be hot according to situation of fluid, in this case, do not touch the switch, otherwise your skin is damaged.



2.4. Installation For Mechanical Connections

*Use appropriate O-Ring or gasket for tightness.

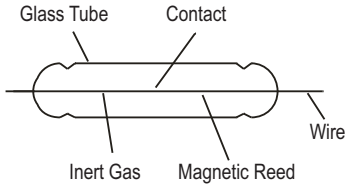
*Ensure that its surface is clean and smooth.

*Assemble the instrument manually.

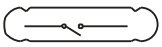
*Connect the contacts as shown in the figure.

(Max.10 Nm for 1/8"BSP and 1/4"BSP, Max.15 Nm for 1/2"BSP, Max.20N Nm for 1"BSP)

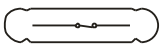
2.5. Reed Relay and Protection Circuit



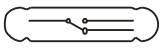
SPST-NO
Single Pole-Single Throw
Normally Open



SPST-NC
Single Pole-Single Throw
Normally Closed

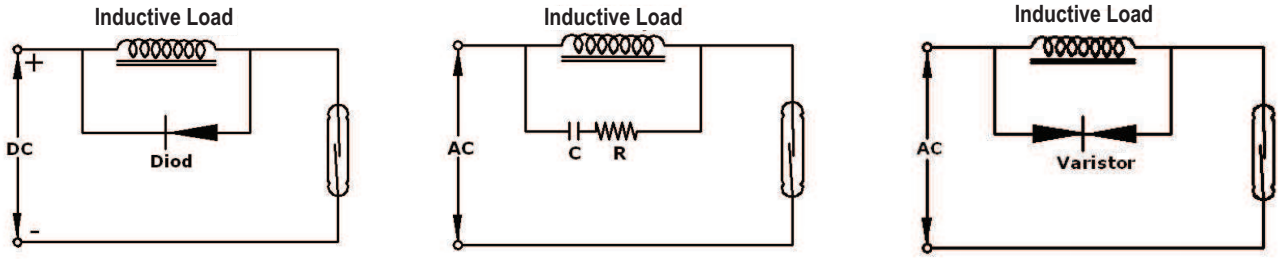


SPDT-NO/NC
Single Pole-Double Throw
Open / Closed Contact



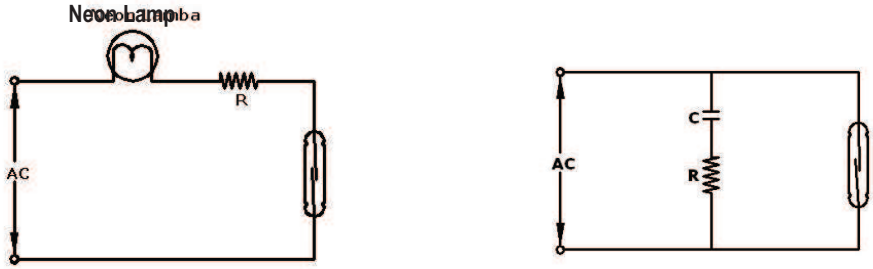
Inductive Load

When reed switch is used for loads such as electromagnetic relay ,contactor or solenoid, reed switch may be exposed to very high voltage depending on value of inductive load. This causes either failure of switch or shortening its service life. Therefore, it is recommended to be used as follows depending on used voltage, for the purpose of protection of switch.



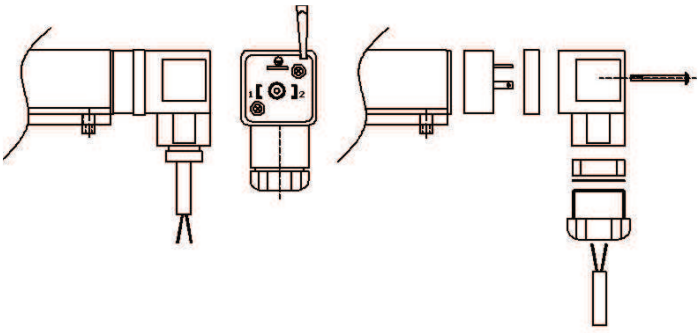
Capacitive Load

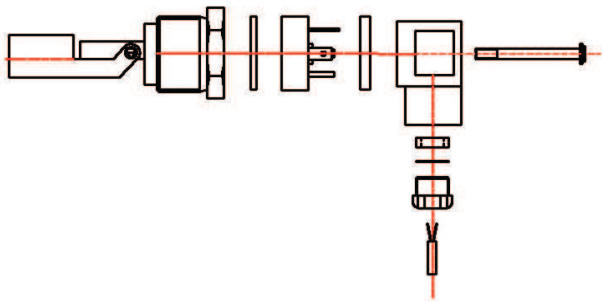
When reed switch is used with capacitive load, it may cause that high current passes over reed switch, depending on value of capacity during Charge –'96 Discharge of capacity. So this may cause failure of switch. It is recommended to be used as follows depending on used voltage, for the purpose of protection of switch.



2.6. Electrical Installation

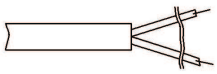
Make the electrical connection of the instrument according to details on its label, table and cable figures in this manual.



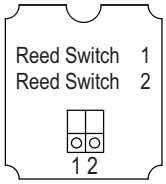


With Cable

Blue 1
Black 2
Single Contact NO

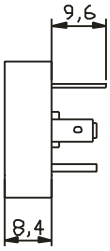


With Clemens

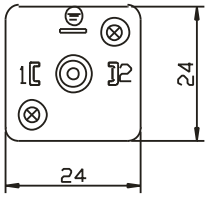


Single Contact NO

Normaly Closed Blue 1
Common Black 3
Normaly Open Brown 2
Single Contact NO/NC



With Socket



Reed Switch 1
Reed Switch 2
Single Contact NO

2.7. Order Form :

Order Form : Please consider sample models when coding!..

1 MODEL ELM

Horizontal Type, Ø 28 mm , L= 45 mm 31
Vertical Type, Ø 28 mm , L= 72 mm 32
Horizontal Type, Ø 41 mm , L= 70 mm 41
Vertical Type, Ø 41 mm , L= 92 mm 42
Horizontal Type, Ø 52 mm , L= 80 mm 51
Vertical Type, Ø 52 mm , L= 120 mm 52
Horizontal Type, Ø 73 mm , L= 115 mm 71
Vertical Type, Ø 73 mm , L= 125 mm 72

With Cable, With Jacket (for bilge).....51s
With Cable.....61
With Cable.....61a
With Socket.....61s
With Metal Housing 61m
With Plastic Housing.....81s
Interior Mounted.....62
Interior Mounted Montajlı OEM.....63
With Cable OEM.....64
With Cable OEM.....64a
With Socket.....64s

2 CERTIFICATE

None.....0
(EN10204-3-1) Material Certification.....1

3 CONNECTION

None.....0000
1/8" BSP.....0001
3/8" BSP.....0003
1/2" BSP.....0004
3/4" BSP.....0005
M10x1 mm.....0303
Special..... x

4 MATERIAL

304 St. St. 001
316 St. St. 002

5 CABLE LENGTH

...mm.....

6 CONTACT STRUCTURE

NO Reed Relay.....06
NC Reed Relay.....07
NO / NC Reed Relay.....08
Special.....x

7 ELECTRIC CONNECTION

Clemens.....00
Polyamide Big Socket P01.....50
Polyamide Small Socket P02.....51
PVC Cable (Max.60°C).....80
PVC Cable (Max.105°C).....81
Silicon Cable (Max.200°C).....82

8 MUHAFAZA

None..... 0
Plastic , B05p 002
Aluminium , B22x.....750
Special.....x

9 OPTIONAL

None..... / 0
Wave Preventive Jacket, For ELM 31 and ELM 32 ..... / D1
Wave Preventive Jacket, For ELM 41 and ELM 42 ..../ D2
Wave Preventive Jacket, For ELM 51 and ELM 42..../ D3
E-GSM Device...../ E-GSM
Level Control Device...../ SK-P2
Level Relay , 24VDC - 5A - ...../ ESR24
Level Relay , 220VAC - 8A - ...../ ESR220
Special...../ x

EXAMPLE

ELM 31 - 001 - 0001 - 001 - 300 - 0 - 80 / 0
ELM 31, Horizontal Type, 304 St. St., 30 cm With Cabled, NO, 1/8"BSP

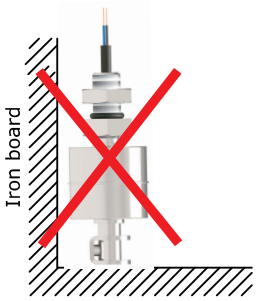
2.7.

WARNINGS !!!

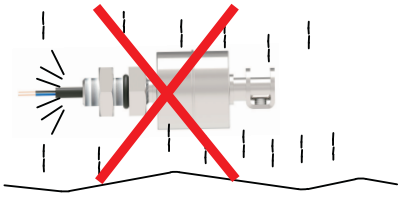
Please pay attention to following matters in order to operate your level switch properly.

Please do not mount slant way, otherwise switch do not work correctly

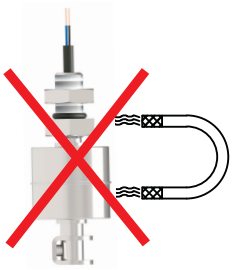
Do not pull the cable strongly, otherwise the characteristics might be changed.



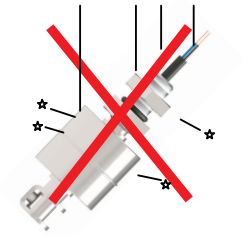
Please keep away from magnetic materials like iron board ; otherwise the characteristics might be affected.



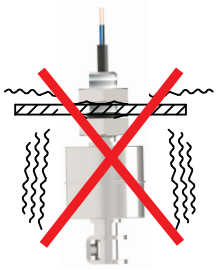
Please do not dip cables potting into liquids,otherwise instulation problem may cause.



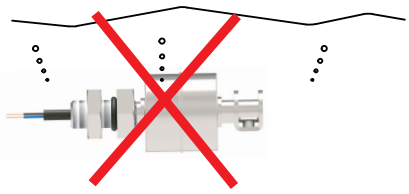
Please keep away from magnetic field ,otherwise it might be mis-operated.



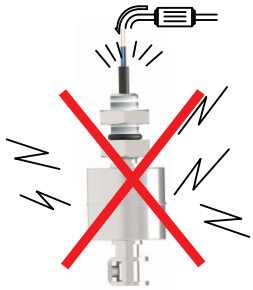
Please do not drop , otherwise the characteristics might be changed.



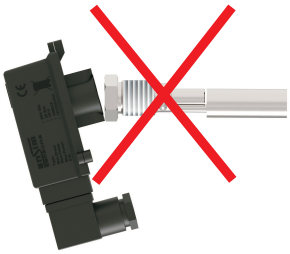
Vibration might be caused instability.



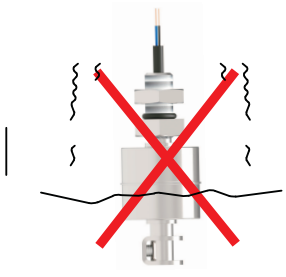
In case vapour splash cable potting points,insulation problem may cause.



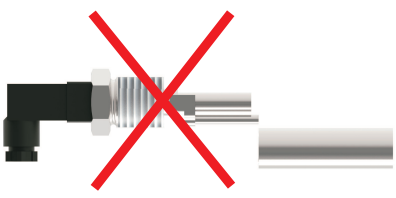
Excess current , to be drawn as a result of direct connection to motor , may burn relay of switch



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 remove the float from connection part. Because its pin might be damaged.

3. Failure Delection

Breakdown	Probable cause	Failure detection\correction
Fluid is leaking	There is a hole on the body.	-Check that is worked under appropriate condition and then contact with producer company.
It does not contact or it contacts continuously	-Socket connection is not touched. -Product was exposed to the magnetic field in the ambient. -Connetion angle is not corrrect. -Contact may have been burned.	-Check for socket connections. -The factor which constitutes the magnetic field should be removed or insulated. -Correct assembly angle. -Inform authorized service.
Body was broken	-Tightening the screws more than adequate during the assembly. -Product falling or taking a blow from outside.	-Inform authorized service.
Unsteady operation in the contact	-Product was exposed to the magnetic field in the ambient. -Product was exposed to vibration. -Product was exposed to high temperature.	-The factor which constitutes the magnetic fieldshould be removed or insulated. -Vibration which will effect the product should be prevented or it should be attached to any place without vibration. -Use in the appropriate opearating temperature.
Thread is scraped	Thread is scraped	-Inform authorized service

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! Serial number shall be indicated to the authorized service center.

4. Disassembly of Instrument

Instrument should be disassembled while feeding and pressure is not available!

5. Service

The instrument does not require maintenance. If it is desired, residue accumulated inside should be blown according to kind of fluid and instrument can be cleaned with soft cleaning solutions. Measures should be taken during the disassembly.

6. Re-Calibration

Calibration is not required during long period useful life of a level switch.

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.

If the instrument contacts with hazardous substances, necessary measures should be taken for decontamination!
Service -Manufacturer Company Name and Address:

LONCA MAK. SAN. TİC. A.Ş.Ferhatpaşa Mahallesi Gazipaşa Caddesi No:104 A 34888 Ataşehir / İSTANBUL - TÜRKİYE
Tel:+90 216 505 05 55 Faks:+90 216 515 45 84 E-Mail: lonca@ensim.com.tr Web: www.ensim.com.tr

8. Disposal

The instrument should be disposed according to 2002/96/EC and 2003/108/EC European Directives (waste electrical and electronic instruments).
Waste electrical and electronic equipment should not be mixed with domestic wastes!

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.