Proximity Magnetic Sensors
Explosive Environment Level Sensors
Intrinsic Safety - ILM Series

- **Spheric or cylindrical AISI316 stainless steel housing**
- **NO and CO output functions**
- **Suitable for explosive environments: for use in zone 0 or zones 1 and 2**

Product Description

The level magnetic sensors ILM.x.y/-MT EX M safety, intended for use in potentially explosive atmospheres, are realized and encapsulated following the “m” procedure of EN 50028 normative.

The level magnetic sensors ILM.x.y/-MT EX IA safety, intended for use in potentially explosive atmospheres, are realized to satisfy the EN 50028 concerning the intrinsic safety “i”.

Ordering Key

ILM S 2 S EX

Type
Output function
Reed contact type
Float type
Atex approval

Type Selection

Float diameter	Connection	Output function	Zone 1 and 2 II 2 G EEx m II T5	Zone 0 II 1 G EEx ia IIC T6
Ø 53 (Spheric)	PVC siliconic cable L= 2m	NO	**ILM A 2 S EX**	**ILM A 0 S EX**
Ø 53 (Spheric)	PVC siliconic cable L= 2m	CO	**ILM S 2 S EX**	**ILM S 0 S EX**
45 x 50 (Cylindrical)	PVC siliconic cable L= 2m	NO	**ILM A 2 C EX**	**ILM A 0 C EX**
45 x 50 (Cylindrical)	PVC siliconic cable L= 2m	CO	**ILM S2 C EX**	**ILM S 0 C EX**

Diameters are specified in millimeters (mm)

General Specifications

Ambient temperature	
Operating	-20 to +60 °C
Environment	
Degree of protection	IP 68 (cable output IP67)
Temperature class	
Zone 0	T6
Zones 1 and 2	T5
Float	
Diameter	
ILMA2SEX, ILMA0SEX, ILMS2SEX, ILMS0SEX ILMA2CEX, ILMA0CEX, ILMS2CEX, ILMS0CEX	Ø 53 mm 45 x 50 mm
Material	AISI 316 stainless steel
Shape	
ILMA2SEX, ILMA0SEX, ILMS2SEX, ILMS0SEX	Spheric
ILMA2SEX, ILMA0SEX, ILMS2SEX, ILMS0SEX	Cylindrical
Min liquid specific weight	0.75 kg/dm^3
Max. pressure	20 kg/cm^2
Approvals	ATEX (by TUV Nord)
CE-marking	Yes

Electrical Connections

Zones 1 and 2:
If the environment does not contain gases constantly, and verified all the other conditions, it is possible the use of the sensor in conformity with the reed contact characteristics, as in the following table; in this case, it is mandatory to protect the circuit by 1.5 A fuse with a breaking capacity of at least 4kA.

Zone 0:
The realization of the intrinsic safety circuit zone 0 has to be done using a safety barrier (i.e. a zener safety barrier) and a power supply apparatus, which must be compulsorily installed outside the hazardous area.

The aim of the safety barrier is to interface a non-intrinsic safety circuit to the sensor, realizing an intrinsically safe output for the sensor.
The values of parameters for use in intrinsic safety circuit zone 0 are listed in the following table.

Output Specifications

Output		ILMS2SEX, ILMS0SEX, ILMS2CEX, ILMS0CEX	Change-over
ILMA2SEX, ILMA0SEX, ILMA2CEX, ILMA0CEX	NO	**Contact rating**	See Contact Specification table

Contact Specifications

	ILMA2*EX (Zones 1 and 2)	ILMS2*EX (Zones 1 and 2)	ILMA0*EX (Zone 0)	ILMS0*EX (Zone 0)
Max Switching Voltage U_i	230 VAC	230 VAC	10.9 V	10.9 V
Max Switching Current I_i	3 A	1 A	15 mA	15 mA
Max Switching Power P_i	100 VA	60 VA	41 mW	41 mW
Effective Internal Inductance L_i	< 2 µH	< 4 µH	< 2 µH	< 4 µH
Effective Internal Capacity C_i	< 40 pF	< 350 pF	< 40 pF	< 350 pF

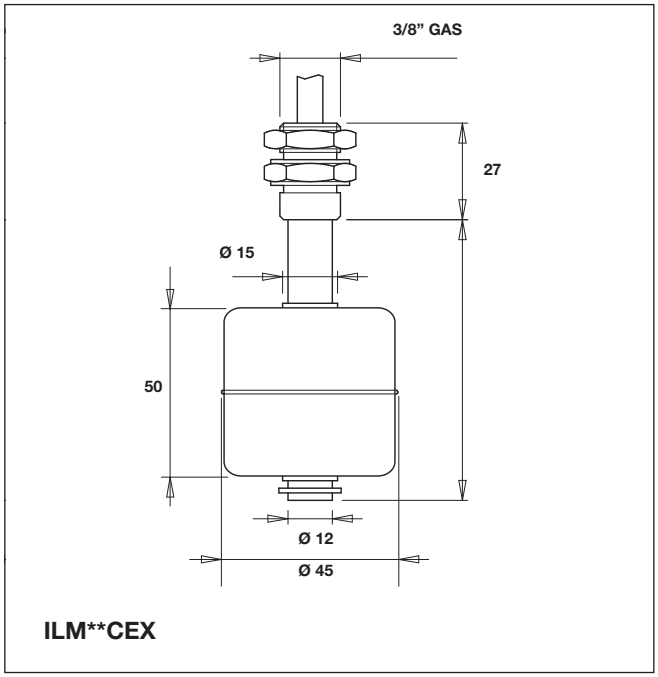
* Maximum acceptable values of capacity and inductance at intrinsically safe terminals of the safety barrier, for II group and with voltages and currents listed in the table above, are:
C_o 2.05 µF
L_o = 165 mH.

Parameters C_i and L_i, added respectively to connecting cables capacity and inductance (if these parameters are unknown, for capacity Cc it can be used 180 pF/m and for inductance L_c = 0.60 µH/m), must not exceed C_o and L_o values indicated above.

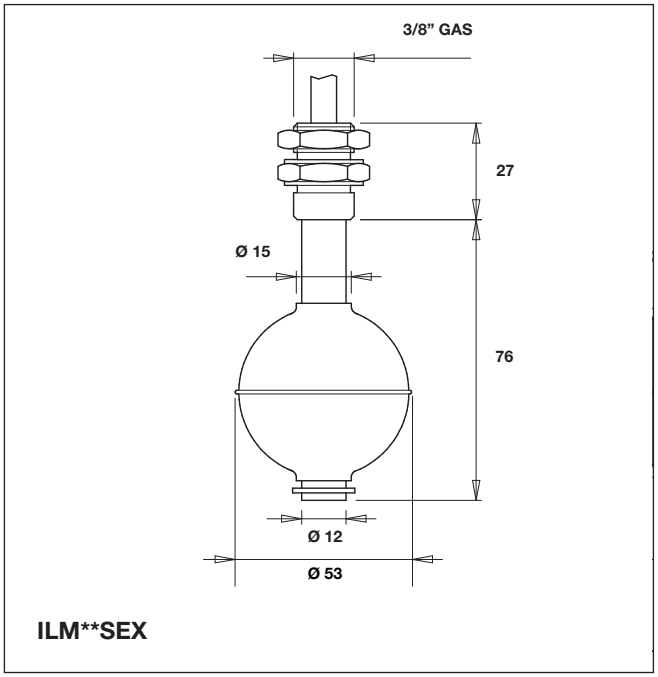
Maximum r.m.s voltage applicable to non-intrinsically safe terminals of associated electrical apparatus (barrier) without invalidating the intrinsic safety is U_m = 250 VAC.

The conditions required to satisfy the safety of a system are:
$U_o <= U_i$
$I_o <= I_i$
$C_o >= C_i + C_c$
$L_o >= L_i + L_c$

Dimensions

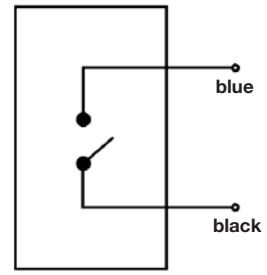


ILMCEX**

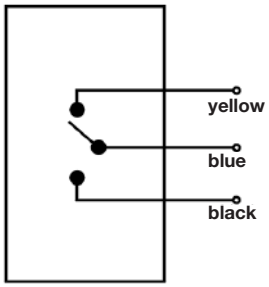


ILMSEX**

Wiring Diagrams



Output function NO



Output function CO