



M.D. Micro Detectors Quality System meets ISO 9001:2008 standards for design, manufacturing and sales of measurement electronic devices, analysis and detection in the industrial and consumer sector.

In next months the Quality System will be updated, meeting the new ISO 9001:2015 requirements.

## Products certification



## ATEX Products

The ATEX directive consists of two EU directives:

- Directive 2014/34/EU on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres.
- Directive 99/92/CE for improving the safety and health protection of workers potentially at risk from explosive atmospheres, where certified equipments are set up, and it is meant for Users.

ATEX derives its name from ATmosphères EXplosibles

## Equipment Protection Level (EPL)

The level of protection assigned to equipment based on its risk of becoming a source of ignition according to EN 60079-0.

**EPL Gb:** Equipment for use in explosive atmospheres due to the presence of gas, with a 'high' level of protection that is not the source of ignition in normal operation or when subject to expected malfunctions, although not on a regular basis.

**EPL Gc:** Equipment for use in explosive atmospheres due to the presence of gas, with a level of protection „increased“ that is not a source of ignition in normal operation. It has some additional security measures in order to ensure that it remains a source of ignition not active in case of expected events on a regular basis (for example, the failure of a lamp).

**EPL Db:** Equipment for explosive atmospheres due to the presence of combustible dust, which has a level of protection 'high'. It does not constitute a source of ignition in normal operation or when subject to expected failures, although not on a regular basis.

**EPL Dc:** Equipment for explosive atmospheres due to the presence of dust, with a level of protection 'increased', which is not a source of ignition in normal operation. It may have additional protections in order to ensure that it remains inactive as a source of ignition in the case of regular and waited failure.

## Classification into zones

Classification of ATEX products into zones at risk of explosion for the presence of Gas and Dust according to EN 60079-10-X.

### Zone 1:

A place in which an explosive atmosphere consisting of a mixture of dangerous substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally between a period of 10-1.000 hours/year.

### Zone 2:

A place in which an explosive atmosphere consisting of a mixture of dangerous substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only lower than 10 hours/year.

### Zone 21:

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally.

### Zone 22:

A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only.





## Atex Certification cat. 3 - zone 2/22 - EPL Gc/Dc – Photoelectric Sensors



type	diameter/dimension	product	page
Cylindrical photoelectric sensors	M12	DM*/**-**AN	57
	M18	FAR*/**-**AN	79
		FAI*/**-**AN	83
LASER cylindrical photoelectric sensors	M18	FAL*/**-**AN	93
IP69K cylindrical photoelectric sensors		SS*/**-**AN	99
		FF*/**-**AN	161



## Atex Certification cat. 3 - zone 2/22 - EPL Gc/Dc – Proximity Sensors

type	diameter/dimension	product	page
Miniature cylindrical inductive sensors	ø4	AC1*/**-**AN	325
	M5	AD1*/**-**AN	333
	ø6,5	AHS*/**-**AN	341
	M8	AES*/**-**AN	349
Miniature cubic inductive sensors	5 x 5 mm	IL5*/**-**AN	357
	8 x 8 mm	IL8*/**-**AN	361
		IL9*/**-**AN	365
Inductive sensors	ø6,5	AH6*/**-**AN	373
		AH1*/**-**AN	373
	M8	AE6*/**-**AN	381
		AE1*/**-**AN	381
	M12	AM6*/**-**AN	389
		AM1*/**-**AN	389
	M18	AK6*/**-**AN	405
	AK1*/**-**AN	405	
Inductive sensors DECOU <sup>®</sup>	M30	AT1*/**-**AN	433
	M12	PM3/00-**-**AN	399
Inductive sensors IP68	M18	PK3/00-**-**AN	415
		M12	PMS*/**-**AN
	M18	PMW*/**-**AN	421
		PKS*/**-**AN	421
Inductive sensors IP69K	M12	PKW*/**-**AN	421
	M18	PKW*/**-**AN	421
Inductive sensors IP69K	M12	PFM1*/**-**AN	459
	M18	PFK1*/**-**AN	465



## Atex Certification cat. 3 - zone 2/22 - EPL Gc/Dc – Ultrasonic Sensors

type	diameter/dimension	product	page
Ultrasonic sensors	M18	UK1*/**-**AN	509
Short housing ultrasonic sensors		UK6*/**-**AN	519

## Atex Certification cat. 2 - zone 1/21 - EPL Gb/Db – Area Sensors

type	diameter/dimension	product	page
4 optics area sensors	H = 90 mm	BX04**/**-**AT	553
10 optics area sensors		BX10**/**-**AT	553
12 optics area sensors	H = 70 mm	BX80**/**-**AT	559

## Atex Certification cat. 3 - zone 2/22 - EPL Gc/Dc – Area Sensors

type	diameter/dimension	product	page
4 optics area sensors	H = 90 mm	BX04**/**-**AN	553
10 optics area sensors		BX10**/**-**AN	553
12 optics area sensors	H = 70 mm	BX80**/**-**AN	559

## Atex Certification cat. 3 - zone 2/22 - EPL Gc/Dc – Applicative Sensors

type	diameter/dimension	product	page
Shock and vibration sensors	M18	VBR1**/**-AN	689

## Diversey Products

To guarantee the correct performances of sensors in particular environments and in the presence of reagents, some M.D. Micro Detectors products have been tested with the following Diversey cleaning agents:

- OXOFOAM: Chlorinated foaming cleaning product
- HYPOFOAM: High-chlorine foaming cleaning product
- UNIFOAM: Heavy duty caustic foam cleaner
- ENDURO CID: continuously foamy cleaning product with chlorine
- DELLADET: Detergent disinfectant
- VIRAGRI PLUS: Bactericidal and virucidal nonoxidizing disinfectant



Test procedure:

- Complete immersion at 4% concentration
- Test period: 25 days
- Test sequence
  1. 20 hours at +5°C
  2. hours at +20°C
  3. 20 hours at +40°C
  4. hours at +20°C

Chemicals equivalence::

HYPOFOAM: ENDURO PLUS  
 UNIFOAM: ENDURO FORCE  
 ENDURO CID: ENDURO ECO: ACIFOAM  
 VIRAGRI PLUS: TEGODOR: DIVOSAN 2000  
 DELLADET: SEPTINEIGE PLUS

type	diameter/dimension	product	page
IP69K cylindrical photoelectric sensors	M18	FF	161
IP69K cylindrical inductive sensors	M12	PFM	459
IP69K cylindrical inductive sensors	M18	PFK	465



To guarantee the correct performances of sensors in particular environments and in the presence of reagents, some M.D. Micro Detectors products have been tested with the following ECOLAB cleaning agents:



- Deionized water
- P3-clint KF: alkaline
- P3-topactive DES: peroxide and paracetic acid
- P3-topax 19: alkaline
- P3-topax 36: highly alkaline
- P3-topax 52: acid
- P3-topax 66: alkaline with chlorine
- P3-topax 91: neutral
- P3-oxonia active: peroxide and paracetic acid

Test procedure:

- Full immersion in the different cleaning agents with different concentrations
- Test period: 28 days
- Test method: Ecolab R&D-P3-E-No.40-1

type	diameter/dimension	product	page
IP69K cylindrical photoelectric sensors	M18	FF	161
IP69K cylindrical inductive sensors	M12	PFM	459
IP69K cylindrical inductive sensors	M18	PFK	465

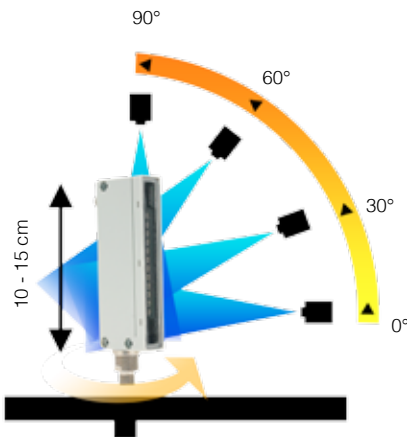
### Products with IP69K protection degree

The following products have been tested to obtain IP69K protection degree. In concrete, IP69K means: highest protection of products against water penetration, even if installed on high pressure or steam jet (IP\_9K).

Products bearing rating undergo a challenging set of tests. The test procedure is clearly specified inside the DIN 40 050 rule.

In order to guarantee total impartiality and reliability, M.D. had their sensors tested by an independent accredited body: the Fraunhofer Institute.

The test configuration consists of having the products sprayed with water pressure coming from four different angles.



- IP69K
- Cycle of 30 seconds
- 14 - 16 liters per minute
- 80 °C water
- 80-100 bar

type	diameter/dimension	product	page
IP69K cylindrical photoelectric sensors	M18	FF	161
IP69K cylindrical inductive sensors	M12	PFM	459
IP69K cylindrical inductive sensors	M18	PFK	465
12 optics area sensors	H = 70 mm	BX80**/**-**AN	559
Safety light curtains type 2	-	LS2_K and LS2_H	615
Safety light curtains type 4	-	LS4_K and L42_H	629



## Special Models

Some special models resistant to Powerful water jets with increased pressure are available and are identified with the addition of two digits (XX) at the end of standard code. Those models can have some restrictions in terms of minimum order quantity and availability, therefore it is always necessary to get in touch with MD Micro Detectors or their Distributors for any related needs.

example:

code	AM	1	/	A	P	-	1	H	XX	
position	1	2		3	4		5	6	7	special model

possible special models are:

description	models
I 3G Ex nA IIC T5 II 3D Ex tD A22 IP67 T 90°C	AN
ATEX certification, category 3 for AH,AE models	
II 3G Ex nA IIC T6 II 3D Ex tD A22 IP67 T 85°C	
ATEX certification, category 3 for AM-PM3, AK-PK3, AT models	
II 3G Ex nA IIC T6 II 3D Ex tD A22 IP67/68 T 85°C	4W
ATEX certifications, category 3 for PMS-PMW, PKS-PKW models	
stainless steel AISI303 housing	
3 m cable length	84
4 m cable length	85
5 m cable length	86
smooth housing	V5

Other special models are available on request.



In November 2015 M.D. Micro Detectors entered the IO-Link Company Association.

IO-link is a bi-directional "point to point" communication system between IO-Link master and all signals of binary interface (a sensor/actuator belonging to any type of technology), which gives as added value the chance to transmit I/O data via serial protocol, avoiding any issue between the field bus (of any type: Ethercat, Ethernet, Sercos, Profibus, Profinet, Asi) and sensors, since all their interfaces are now able to communicate.

In practice, IO-Link sensors allow:

- Easy installation
- Automatic parametrization
- Extended diagnosis and maintenance based on real factory needs.

M.D. Micro Detectors can supply with many types of sensors equipped with this technology on customer demand.

In particular, following families are the first M.D. products available with IO-Link on board: M18 (UK1D series) and M18 short body (UK6D series) ultrasonic sensors.

Please feel free to contact yr sales key account for more information.