

# Special-Sensors for Automation



**ATEX Gas-** 

- Flow sensors
- Inductive sensors
- Level sensors



**ISO 9001  
certified**

## Gas -

### ATEX 100a

This term indicates compliance with the 94/9/EU directive, which prescribes European-wide guidelines for handling equipment and protective systems in potentially explosive atmospheres. As of 1 July 2003, these regulations will be binding and thereby guarantee free movement of EX products in the EU. From this date on, products that were developed and manufactured in accordance with national EX standards may no longer be traded. This ends the transitional period for operators of facilities. From this date on only facilities that have been approved under ATEX may be operated. One provision, in particular, that is new is that now areas that are subject to dust exposure are included in the ATEX. Operations where dust accumulates or is processed must therefore come to terms with the new directives.

### Zone classification in the gas area

Facilities in which explosion hazardous atmosphere can be generated are divided into three zones.

Zone 0	EX atmosphere present frequently or constantly or long-term
Zone 1	EX atmosphere occasionally present
Zone 2	EX atmosphere present very seldom and then only for a short period.

The operator is responsible for zoning.

### Product identification

ATEX 100a prescribes a uniform identification of the equipment approved for use in potentially explosive areas.

- the equipment group: II (all areas except mining)
- the equipment category: 1G = use in zones 0, 1, 2  
2G = use in zones 1, 2  
3G = use in zone 2

### Method of protection

i	intrinsically safe
ia	certified for Zone 0
ib	certified for Zone 1
e	increased safety
m	molded, encapsulation

### Explosion sub-groups

All industry gases/vapours are classed as Group II gases. Group II is sub-divided into 3 sub-groups.

- IIA - High energy is required to ignite.  
(Ethyl alcohol, fuel, propane)
- IIB - Less energy is required to ignite.  
(Ethylene, lightning gas, ethylene)
- IIC - Little energy is required to ignite.  
(Hydrogene, acethylene)

### Temperature classes

Gases and vapours are divided into temperature classes. According to these temperature classes, explosion-protected equipment is designed in such a way that ignition by the surface is not possible. The temperature class is dependant on the medium.

Temperature classes	Ignition temperature	Examples
T1	≥ 450 °C	Propane, Lighting gas, Hydrogend
T2	≥ 300 °C	Ethyl alcohol, Ethylene, Acetylene
T3	≥ 200 °C	Fuel
T4	≥ 135 °C	Acetaldehyde, Ethyl ether
T5	≥ 100 °C	
T6	≥ 85 °C	Carbon disulfide

### Sensors under ATEX for Gas-Ex

#### FLOW CONTROL

##### Flow sensors ST..

Sensors for the installation in Zone 0 or Zone 1.

##### Amplifiers SZA..

Amplifiers for flow controller and air flow controller certified for zone 0 / 1. They are installed outside the hazardous area.

##### Amplifier SS 400..

These amplifiers for flow sensors are installed directly in zone 1 and can be adjusted and read on site.

#### LEVEL CONTROL

##### Level sensors KEAC

These capacitive sensors monitor the fill level of explosive fluids.

##### High temperature sensors KGFT...Ex

These sensors are designed to monitor the fill level of high-temperature media.

##### Series UFGS... Ex and TF... Ex

Optical / thermal flow controllers for fuels and other explosive media.

##### Amplifier SF3

Amplifier for the connection of Opto-Level Sensors and thermo-sensors; to install in zone 1.

#### INDUCTIVE SENSORS

##### Inductive sensors IGEX / IDEX

Sensors for detecting metals in the Ex area zone 0. Devices can be delivered in M12, M18 and M30. There are also configurations with diameters of 80 mm to 160 mm.

##### Amplifier EGE 90..

The amplifiers for inductive sensors are intended for rail mounting installation.

#### EX-HOUSING AND ACCESSORIES

##### Lightning protection SBGX..

The lightning protection is placed between the sensor and the amplifier. Lightning overvoltage is discharged to ground.

##### Housing for screw terminals GK..


These terminal boxes make it possible to set up terminal clamping points in intrinsically safe and in not intrinsically safe electric circuits within zone 1. The boxes are manufactured with type "e" increased safety or type "i" intrinsic safety.

##### Housing for amplifier SSAE and GAM..

The housing with amplifiers is ready for mounting and use within zone 1/21 and serve to connect several optical or thermal fill level monitors.


## Gas -

### Series STSEX

- Intrinsically safe – Zone 0
- Gas  II 1/2 G Ex ia IIC T6 Ga
- Flow monitoring 1...200 cm/s
- Terminal clamps




### Series STS / ST

- Intrinsically safe – Zone 0
- Gas  II 1/2 G Ex ia IIC T6 Ga
- Flow monitoring 1...200 cm/s
- Special purpose alloys  
Hastelloy – Tantal – Titan
- Sensor length 25...250 mm




### Series STS

- Intrinsically safe – Zone 0
- Gas  II 1G Ex ia IIC T6 Ga
- Air flow monitoring 2...25 m/s
- For extraction systems
- Sensor length 48...250 mm



### Amplifier for intrinsically safe flow sensors

#### SZA 400

- Gas  II (1) G [Ex ia Ga] IIC
- For EGE flow sensors

#### SS 400 Ex


- Gas  II (1) 2G Ex mb [ia IIC Ga] IIC T6 Gb
- Installation and adjustment in Zone 1/21



Complete datasheets can be found in our catalogue „Flow Sensors“ E1.


## Gas -

### Series KEAC

- Intrinsically safe – Zone 0
- Gas  II 1G Ex ia IIC T6 Ga
- Capacitive level monitoring
- PTFE tip
- Length 80...1000 mm
- Medium temperature up to 120 °C




### Series KGFT ... Ex

- Intrinsically safe – Zone 0
- Gas  II 1G Ex ia IIC T6 Ga
- Capacitive level monitoring
- PEEK tip
- Medium temperature –35 ... +200 °C





### Series UFGS... Ex

- Intrinsically safe – Zone 0
- Gas  II 1G Ex ia IIC T6 Ga
- Opto-Level monitoring
- Material stainless steel – glass – Kalrez (FFKM)
- For fuel and other explosive media




### Series TF... Ex

- Intrinsically safe – Zone 0 - Zone 1
- Gas  II 1G Ex ia IIC T4 Ga
- Gas  II 2G Ex ia IIC T4 Gb
- Thermal level monitoring
- For fuel and other explosive media



### Amplifier for intrinsically safe level sensors

#### SF3


- Gas  II (1) 2G Ex mb [ia/ib IIC Ga/Gb] IIC T6 Gb
- Installation in Zone 1



Complete datasheets can be found in our catalogue „Level Sensors“ E2.


## Gas -

### Series IGEX

- Intrinsically safe – Zone 0
- Gas  II 1G Ex ia IIC T6 Ga
- Operating distance 2 / 4 / 5 / 8 / 10 / 15 mm
- M12 – M18 – M30
- Connection to the amplifier EGE 90-Ex1




### Series IDEX – long sensing range

- Intrinsically safe – Zone 0
- Gas  II 1G Ex ia IIC T6 Ga
- Operating distance 55 / 70 / 120 mm
- Connection to the amplifier EGE 903 Ex




### Amplifier for intrinsically safe inductive sensors and level sensors

#### EGE 90 Ex1

- Gas  II (1)G [Ex ia Ga] IIC
- For EGE 2-wire-sensors
- For NAMUR sensors
- LED-display
- Cable break and short circuit monitoring

#### EGE 903 Ex


- Gas  II (1)G [Ex ia Ga] IIC
- For EGE 3-wire-sensors
- LED-display
- Cable break and short circuit monitoring

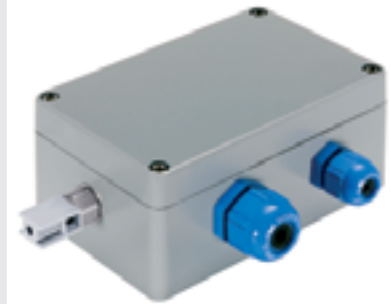


Complete datasheets can be found in our catalogues „Inductive Sensors“ E3 and „ATEX Dust-Ex“ ES9.





## Gas -

### Lightning protection SBGX 01

- Gas  II (1) 2G Ex ia IIC T6 Gb
- Discharges overvoltage to the ground
- For long lines





### Series GKE – GKI - GKEI

- -Housing Zone 1/21 for screw terminals
- Gas  II 2G Ex e IIC T6 Gb
- Gas  II 2G Ex ia IIC T6 Gb
- Gas  II 2G Ex e ia IIC T6 Gb
- Connection of intrinsically safe and non-intrinsically safe circuits
- Installation in Zone 1/21





### SSAE

- Amplifier unit dust + gas 
- Gas  II (1) 2G Ex mb [ia IIC Ga] IIC T6 Gb
- Use without ex-housing in zone 1/21
- Mounting plate - ready to install



### Series GAM

- -Housing Zone 1/21 for amplifiers
- Gas  II (1) 2G Ex mb [ia/ib IIC Ga/Gb] IIC T6 Gb
- For installation of Ex-amplifiers within Zone 1/21



Complete datasheets can be found in our catalogues „Flow Sensors“ E1 and „ATEX Dust-Ex“ ES9.







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