

www.georgin.com
Industrial
Applications



MEASURE
CONTROL
SAFETY



LES REGULATEURS GEORGIN A more than 70 years experience

Established in 1939, the company has constantly grown by widening the range of its activities around two areas of expertise: industrial instrumentation and intrinsic safety protection technology for hazardous areas.

GEORGIN, by showing proof of its high level of technical skill added to a high level of reactivity to the needs of industrial customers, has been able to develop innovations that make the difference.

- **1965:** The **measure and control** department was created for **instrumentation** of pressure and temperature.
- **1970:** Renowned and specialised in intrinsically safe interfaces, the **electronic** department was created.
- **1981:** A first **CENELEC** Certification was obtained.
- **1993:** The **energy-transport-Navy** department was set up to meet the demands and the specific needs of major accounts like the French state rail operator, the Navy, thermal and nuclear power stations.
- **1994:** Certification to the **ISO 9001** standard.
A subsidiary was opened in **Belgium**.
- **2001:** A first **ATEX** Certification was obtained.
- **2003-04:** **Configurable digital electronics** and **fieldbus** were introduced.
- **2009:** **SIL** certification for our product range.

A commercial office was opened in **China**.

Today, GEORGIN continues to develop these activities with all the rigor of an **ISO 9001 Version 2008** certified quality management system.

70 years know-how

In collaboration with its customers, GEORGIN has guided its businesses in a demanding and constantly changing market by developing and enhancing its skills in the fields of pressure and temperature (logical and analogue sensors), intrinsic safety equipment (barriers, relays, converters, power supplies, indicators...) and fieldbuses (remote I/O).



GEORGIN's investments in R&D have enabled it to deliver reliable and durable equipment and to maintain the quality of its products.

Recognized skills in

- **Measurement**
- **Control**
- **Safety**

The products offered are suitable for a multitude of industrial applications in which they are integrated into the main processes. They are used in very harsh environments such as extreme temperatures, corrosive atmospheres and explosive atmospheres.

GEORGIN, Specialist for harsh environments.


Functional safety and safety integrity



Georgin offers a wide range of products and assists its customers in making their industrial sites safe to meet the requirements of an instrumented safety function complying with the Machinery Directive 2006/42/EC.

To qualify our products, we have chosen to integrate the requirements of standard CEI61508 at the early stages of design.

For the current range of pressure and temperature switches, and pressure transmitters, Georgin has performed an operational feedback analysis, allowing us to quantify the reputation for reliability of our equipment.

All our SIL approved products allow  without redundancy or external monitoring in accordance with the Iool Markov architecture.

GEORGIN, at your service

The service

Our team is at your side at every stage in your projects to provide you with :

- ✓ All the information and advice you need about the selection of equipment,
- ✓ Commercial support, based on its technical skills,
- ✓ An answer to your needs with suitable delivery times,
- ✓ Technical assistance when installing our equipment and systems,
- ✓ And regular maintenance of your pool of Georgin instruments by a reactive After-Sales Service.

Georgin also supports you by giving training courses on its products in order to optimise their use.

Georgin is certified to provide professional training (certification N° 11920903792) in the following fields: pressure and temperature measurement, intrinsic safety loop calculation, installations conforming to intrinsic safety standards, Industrial Local Area Networks...

Documentation

This is available in several languages and can be easily downloaded from

www.georgin.com

A commercial presence near you

GEORGIN has a competent commercial network made up of a sales engineers team in France and Belgium backed up by regional commercial agents.



MEASUREMENT
CONTROL
SAFETY

MEASUREMENT

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CONTROL • SECURITY

PRESSURE

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Pressure gauges - Thermowells - Thermometers -
Flanges - Valves - Indicators - Calibration bench

HAZARDOUS AREAS 18-19

- Explosionproof «Ex d»
- Increased safety «Ex de»
- Intrinsic safety «Ex ia»
- Pneumatic

INTRINSIC SAFETY INTERFACES "Ex ia"

- Signals interfaces :

| | |
|--|-------|
| Relays - Converters - Power supplies | |
| ▶ RAIL MOUNTING MODULES RDN, BPX, BXN SERIES | 20-21 |
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Remote I/O systems

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Signal conditioners
Draught burner regulators



The head office, 5 kilometres from Paris



GEORGIN TECHNOLOGY

More than half a century...

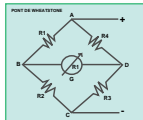
supplying measurement and pressure or temperature control instruments has enabled the GEORGIN team of engineers to acquire know-how and experience which are expressed throughout this catalogue, beginning with the wide range of technologies used to provide solutions to each specific problem encountered by their customers.

1 Instruments for measurement

PRESSURE TRANSMITTERS

GEORGIN use the piezo-resistive effect sensor principle to make these products.

The distortion under pressure of a sensing element results in resistance fluctuations of a WHEATSTONE strain gauge bridge screen printed on a ceramic support. This type of sensing element is commonly called a thick film strain gauge.

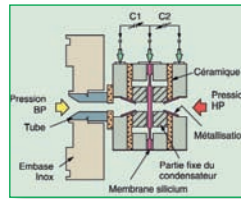


Under the effect of pressure a distortion is caused. This one leads to proportional variations in the resistance bridge to obtain a 4 to 20 mA electric signal.

This family of pressure transmitters generally use a cylindrical format, with fixed range, 0.5% accuracy class and are not configurable.

PROCESS PRESSURE TRANSMITTERS

Using leading edge technology in silicon chip manufacturing, ProcessX transmitters incorporate a high performance micro capacitance silicon sensor.



The differential pressure is applied to the silicon sensor and changes the two capacitance values (C1 and C2) of the sensor as a function of the measured pressure.

The silicon chip is assembled floating in the measuring cell neck and improves the static pressure and temperature stability characteristics.

The SMART pressure transmitters of this family are rangeable and offer a high level of accuracy (<0.1% class).

TEMPERATURE CONVERTER

The TiXo family range includes 3 models of programmable temperature converters using digital technology.

TiXo allows a large range of inputs as RTDs, TC, resistance or voltage (2-wire technology) :

- TiXo1 is fully dedicated to RTD100 input.

- TiXo2 and TiXo3 have a programmable universal input (RTDs, TC, resistance or voltage). They also include cold junction compensation and galvanic insulation.

This new generation of converter is fully and easily configurable through our ProgressXmanager freeware, an FDT tool or a HART® pocket.

TiXo3 uses the HART® communication protocol and accepts a signal from a Resistance Temperature Detector (RTD), a thermocouple, a resistance or a millivolt signal.



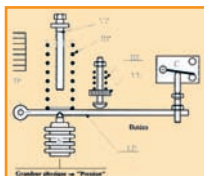
2 Instruments for control and safety

PRESSURE AND TEMPERATURE SWITCHES

The pressure or temperature to be controlled is applied to a sensor (diaphragm, bellows, manometric tube). Whenever there is a change of pressure or temperature, the sensor is distorted and acts on a force balance connected to a microswitch.

Opposite this sensitive element, is an adjustable spring that enables the working point to be adjusted.

Adding a second adjustable spring permits greater or lesser increase of the hysteresis (dead-band) or to act on dislocation between the two contacts if the instrument is equipped.



MEASURE ELEMENT

Relative pressure

■ Bellows

The most conventional sensing element used in our pressure and temperature switches is metallic bellows (bronze or stainless steel). Flexible by nature, it compresses or elongates axially under the effect of pressure and provides excellent transmission.

■ Diaphragm

For low pressure, bellows which are too rigid, are replaced by an elastomer diaphragm which is held in place by two metal plates.

«Diaphragm» technology is also used in cases of excessively high pressure and pulsating phenomena.

■ Manometric tube

For very high pressure, the sensor used is a stainless steel tube curved into a C shape which is closed at one end and which changes position under the effect of pressure.

Differential pressure

A differential pressure switch is fitted with two connections : one of them (HP) is connected to the highest pressure, the other (BP) to the lowest pressure which means, in the majority of cases, that it has to be fitted the right way round. The resultant of the two different pressures acts on the internal mechanism which then functions like a standard instrument.

Absolute pressure

The pressure switch is fitted with a differential measuring element with bellows, one of which is vacuum sealed so as not to be affected by atmospheric pressure.

Temperature

Two types of bulbs are used :

- The directly connected bulb.
- The capillary bulb allowing an installation away from the sensor.

3 Intrinsic safety

Securing sites equipped with electrical installations on which explosive atmospheres may occur is a prime requirement for any industrial company.

The electrical safety systems provided by GEORGIN concern industrial sites equipped with electrical installations on which explosive atmospheres may occur.

Several protection methods can be used for the instruments installed in potentially explosive areas. GEORGIN offers its customers four of those methods, i.e. flameproof enclosures, increased safety, double protection and, in particular, intrinsic safety.

This is based on the principle of the "intrinsic safety electrical circuit" defined by the CENELEC European standard as a "circuit within which no thermal effect produced under the test conditions prescribed by the standard is capable of causing inflammation in a given explosive atmosphere."

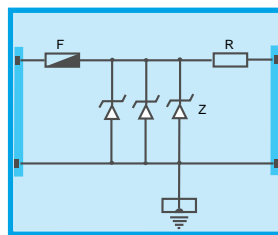
Since the 1st of July 2003, the ATEX 94/9EC (users) and 99/92EC (manufacturers) directives have introduced requirements concerning the installation and interfacing of equipment in dangerous areas.

These intrinsic safety circuits are made up of two main parts :

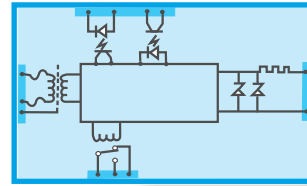
- The "intrinsic safety" equipment intended for installation in the dangerous area (sensor, loop indicator, pilot lamp...)
- The "associated" equipment where only the circuits directly connected to the explosive area are intrinsically safe. It is located in a safe area (signal conditioners, power supplies...) or installed in an area with risks of explosion (remote Inputs/Outputs).

An intrinsic safety circuit can be designed in two ways:

- either earth referenced, the so called "Zener barriers"



- or completely insulated from the earth, it is then said to be a "galvanic insulation" circuit



GEORGIN uses both methods of insulation and is thus able to meet the requirements of each type of installation.

Intrinsic safety equipment must remain safe even if faults occur in components or connections.

If the equipment's design allows it to remain safe even when a combination of 2 faults is present, it belongs to the "ia" category.

If it remains safe when one fault is present, it belongs to the "ib" category.

Throughout its catalogue, GEORGIN offers category "ia" equipment, which means that it can be used in all areas and, in particular, in the areas of permanent danger.

4 Fieldbus technology Remote I/O

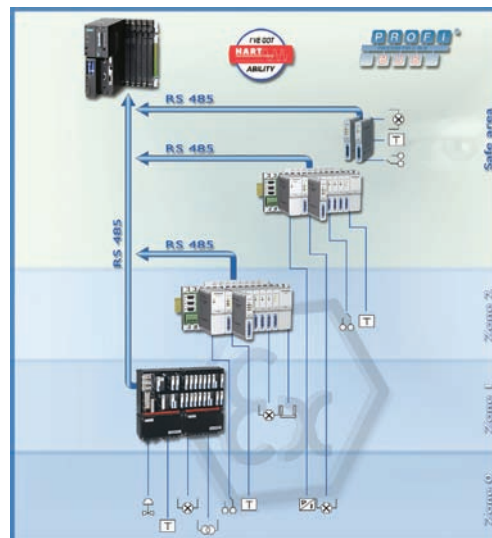
The increasing use of digital signals and the new "Network" architectures has caused GEORGIN to expand its range of interfaces, in this instance, remote I/O's on fieldbuses.

These systems are located as near as possible to the sensors and actuators, i.e. directly in the areas with risks of explosions, and are used for digital communication between the sensors and actuators and the PLC or DCS systems.

They are used to interface all the instruments installed in hazardous area, intrinsic safety sensors and actuators, Non IS devices (flameproof transmitters, encapsulated solenoid valves,...)

The data is transported on a pair of wires by digital communication using the Profibus DP or Modbus RTU protocol.

The first mentioned is the main fieldbus protocol in the process industry and can be used to directly configure our systems from any common DCS system (Siemens, Emerson, ABB, Honeywell,...).



The HART information can also be accessed via the Profibus DP protocol thus allowing for maintenance of the pool of analogue instruments (sensors and actuators).

PRESSURE

Electronic Measurement

Operating principle : the distortion under pressure of a sensitive element results in resistance fluctuations of a WHEATSTONE strain gauge bridge. GEORGIN uses two technologies for their sensors, i.e. strain

gauges with thick layer coating on a ceramic base plate as well as silicium semiconductor strain gauge. These transmitters can be powered by our range of converters described on pages 20-21 and 22.


Transmitter
TR/TA Series

Industrial Model

Version : relative and absolute pressure

- Thick enameled strain gauge on ceramic
- 0.4...+400 bar
- 4-20 mA - 2 wires signal
- Global error : 0.2 % F.S.
- Origin and span adjustment

Options :

- Flush diaphragm
- Cable output or stainless steel head
- Intrinsically safe  ATEX
- Rangeability
- Reinforced maximum pressure



Connector type
DIN 43650



1" GM connection

Transmitter
TR/TA Series

Flush sensor

Key benefits :

- Food and pharmaceutical compatibility
- No fluid retention area
- No fluid pollution risk (no filling liquid)
- Direct detection of cell breaking



DIN 43650
connector



Cable connection

Transmitter
GR/GA Series

Compact industrial model

Version : relative and absolute pressure

- Thick enameled strain gauge on ceramic
- -1...+250 bar
- 4-20 mA - 2 wires signal
- Global error : 1% FS or 0.5% FS

Options :

- M12 connector or cable output
- Intrinsically safe  ATEX

Operating principle: As a measuring diaphragm material, the sensor uses a single crystal silicon that has minimal hysteresis and fatigue, which improves the transmitter's characteristics by improving long term stability and reliability.



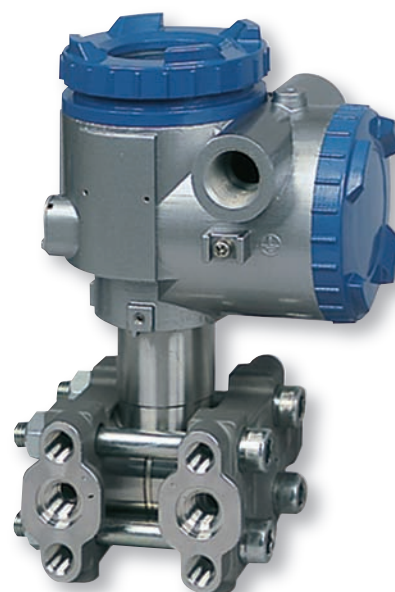
SMART transmitter

ProcessX Series

Gauge, absolute, differential pressure and level transmitters

- Output: 4-20mA and Hart® protocols
- Power supply: 10.5 to 45 Vcc
- Wetted parts materials: Stainless Steel 316L, Hastelloy, Tantalum, ...
- Burnout according NAMUR NE43 recommendation
- 100 : 1 range depending on the maximum span
- Long term stability: $\pm 0.1\%$ of max. span/10 years

- FKG model** Gauge pressure transmitter
Span: -1 to 500 bar (5 ranges)
Accuracy: 0.062% (0.04% as an option)
- FKA model** Absolute pressure transmitter
Span: 0 to 100 bar (5 ranges)
Accuracy: 0.2% (0.1% as an option)
- FKC model** Differential pressure transmitter
Span: +/- 10mbar to +/- 30bar (14 ranges)
Static pressure up to 300bar (1035bar on request)
Accuracy: 0.065% (0.04% as an option)
- FKE model** Level transmitter
Span: 600mmWC to 300mWC (5 ranges)
Accuracy: 0.165% (0.1% as an option)



FKP and FKH are dedicated for direct process mounting. Global specifications are the same as versions with flange process connection except for accuracy (0.1 to 0.2%), range (16:1) and process wetted parts (316L Stainless Steel).

- FKP model** Gauge pressure transmitter
Span: -1 to 100 bar (4 ranges)
Accuracy: 0.1%
- FKH model** Absolute pressure transmitter
Span: 0 to 30 bar (3 ranges)
Accuracy: 0.2% Précision: 0.2%

Options :

- Analogue or digital Indicator
- Flameproof housing
- Stainless Steel housing
- Chlorine service,
- Oxygen service,
- Side vent,
- ...
- Hand Held Communicator
- Intrinsically safe  ATEX
- SIL2 Capability 

Digital indicator

ProcessX Series



The digital indicator is based on LCD technology and shows the information on 2 lines each of 6 digits. The indicator can be used to configure ProcessX transmitters.



TEMPERATURE

Electronic Measurement

Operating principle : measurement is carried out by using RTD or thermocouple sensors. GEORGIN offers several models of probes, transmitters and housings adapted for a wide scope of applications. These tem-

perature sensors can be connected to our various range of converters described on pages 20, 21, 22 and 26..

Temperature sensors

S2000 and S4000 Series

- **Resistance probes :**
 - RTD100, RTD1000, Ni100,...
 - 2, 3, 4-wires technology (for RTD)
 - Simple or double type
 - Accuracy Class : A or B according to IEC751
- **Thermocouples :**
 - B, E, J, K, N, R, S, T, W, ... types

Heads : B, DAN, DANW, MA, ... types and Ex d housings
Process connection : fixed, sliding, by flange or sanitary type.
Options : removable probe, lagging extension, ...

Available in ATEX 



Programmable converters

TiXo Series



- Head mounting converters
- RTD or universal input
- 4/20 mA linearised output
- Galvanic isolation according to model (TiXo2)
- HART version according to model (TiXo3)
- Easy and fast programming with ProgressXmanager software or with FDT / DTM concept

Available in ATEX 

SIL2 Capability 

Temperature transmitters

S2000 and S4000 Series

The temperature sensor and transmitter is a combination of a RTD or thermocouple probe with a transmitter located in temperature sensor's head.

■ Sensors :

- RTD or thermocouple
- Simple or double type
- Accuracy Class : A or B according to IEC751

■ Power supply :

- 4/20 mA loop powered

■ Transmitters :

- Fixed or programmable ranges
- For uses between -200 to +2300°C
- 4/20 mA linearised output

■ Heads :

- B, DAN, DANW, ... types and Ex d housings

■ Process connections :

- Fixed, sliding or plain stem
- Welded or barstock thermowells : to weld or to screw

Available in ATEX 



Specific design

■ Electrical connection

- DIN 43650 connector
- Cable output
- LEMO connector, ...

■ Process connection :

- M12, M14, 1", 1"1/2, ...

■ Temperature element :

- 90° angled probe
- Pipe sensor, ...

PRESSURE

**Pressure switch
P Series**

Industrial model

Version : relative, differential and absolute pressure

Housing : IP66 aluminium alloy with front scale

Sensors : bellows, diaphragm or manometric tube

Microswitch : 1 or 2 SPDT

Ranges :

-1...+800 bar relative (40 ranges)

2.5 mbar to 90 bar differential (static 250 bar)

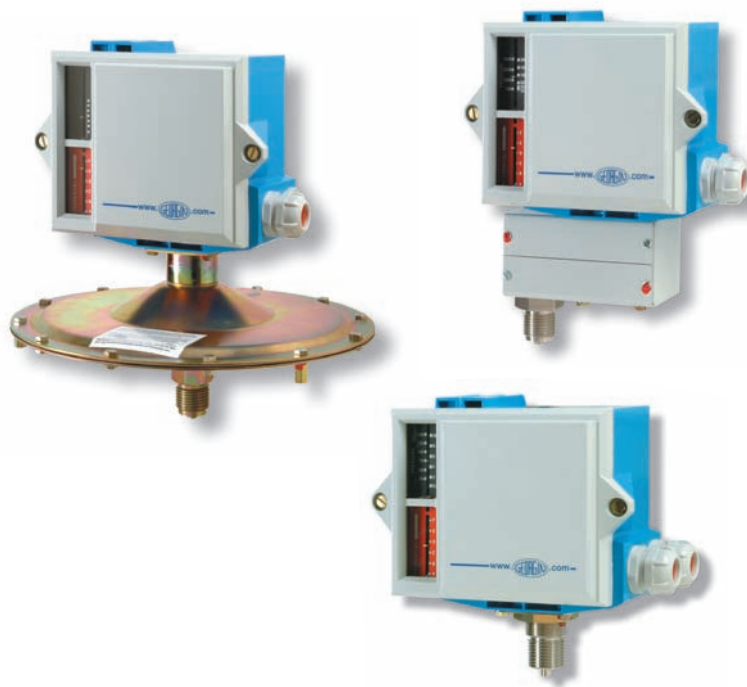
Options : breather, drain, electrical connection at 40°, ball bearing mechanism, potentiometer output, pneumatic cells

Approvals : VERITAS

Available in ATEX



SIL2 Capability



**Pressure switch
F Series**

Compact Industrial model

EXCELLENT SHOCKS AND VIBRATIONS RESISTANCE

Version : relative, differential and absolute pressure

Housing : IP66 aluminium alloy with internal scale

Sensors : bellows, diaphragm or manometric tube

Microswitch : 1 or 2 SPDT

Ranges :

-1...+800 bar relative (40 ranges)

20 mbar to 100 bar differential (static 250 bar)

Option : Front scale, breather, line resistance, pneumatic cells

Available in ATEX



SIL2 Capability



PRESSURE

**CONTROL
SECURITY**

Pressure switch G Series

Small size model

Version : relative pressure
Housing : polyarylamide -IP 66
Sensors : bellows, diaphragm,
manometric tube
Microswitch : 1 or 2 SPDT
Ranges : 1...+400 bar (10 ranges)

Available in ATEX 

SIL2 Capability 



Pressure switch U Series

Low cost model

Version : relative pressure
Housing : polyarylamide - IP65
Sensor : diaphragm
Microswitch : 1 SPDT
0.5...+40 bar (4 ranges)
Approbation :
Domestic use : EN60730

SIL2 Capability 



Pressure switch AIRGAS Series

Specific application

**FOR VENTILATORS SECURITY AND
BURNERS CONTROL**

Version : relative and differential
pressure
Housing : painted steel cover
Sensor : diaphragm
Microswitch : 1 or 2 SPDT
-500...+1100 mbar relative
10 to 1100 mbar differential (static 4 bar)

Available in ATEX 



Pneumatic pressure switch C Series

Compact model

Version : relative pressure
Sensor : diaphragm
Pneumatic cell NO or NC
Range : 2...+20 bar



TEMPERATURE

**Temperature switch
P Series**

Industrial model

Version : direct or remote bulb
Housing : IP66 aluminium alloy with front scale
Sensor : direct bulb, capillary and bulb (2 to 20 meter)
Microswitch : 1 or 2 SPDT
Ranges : -90°...+600°C (11 ranges)
Options : breather, drain, electrical connection at 40°, capillary armour, thermowell,...

Approvals : VERITAS, GOST-R

Available in ATEX 



**Temperature switch
F Series**

**Compact
Industrial model**

Version : direct or remote bulb
Housing : IP66 aluminium alloy with internal scale
Sensor : direct bulb, capillary and bulb (2 to 20 meter)
Microswitch : 1 or 2 SPDT
Ranges : -90°...+380°C (10 ranges)
Options : capillary armour, front scale, thermowell,...

Approvals : GOST-R

Available in ATEX 

SIL2 Capability 



TEMPERATURE

Temperature switch G Series

Small size model

Version : direct or remote bulb
Housing : polyarylamide -IP 66
Sensor : direct bulb, capillary and bulb (2 to 20 meter)
Microswitch : 1 or 2 SPDT
Ranges : -20°...+250°C (5 ranges)

Available in ATEX 



**CONTROL
SECURITY**

Temperature switch U Series

Low cost model

Version : remote bulb
Housing : polyarylamide -IP 65
Sensor : capillary and bulb
Microswitch : 1 SPDT
Ranges : -20°...+210°C
(5 ranges)



TEMPERATURE CONTROL

Working principle used is based on vapour actuation : temperature which creates a pressure into the bulb, becomes a force through a bellows. Such technology allows a quick response time and a measurement independent from ambient temperature of the instrument .

SPECIFIC APPLICATIONS

MARINE



Pressure and Temperature switch

PM Series

- Use** : any Navy boats
- Version** : relative, differential and absolute pressure, temperature.
- Ranges** : -1...+800 bar / -50...+600°C
- Microswitches** : 1 or 2 hermetically sealed
- Connections** :
 - Process : 1/2" BSP M, 1/4" BSPF, M20x1.5
 - Electrical : compression gland BVP1 or CMDEL and terminals
- Mechanism** : ball bearing balance
- Mounting** : strong plate

Pressure and Temperature switch

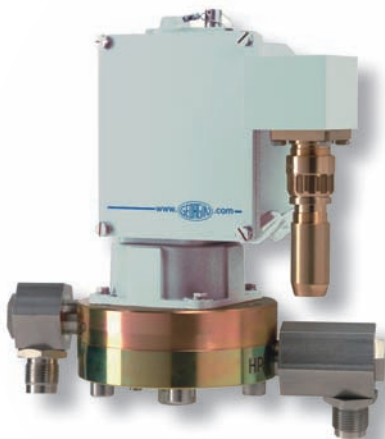
FM Series

- Use** : any Navy boats
- Version** : relative, differential and absolute pressure, temperature.
- Ranges** : -1...+400 bar / -50...+120°C
- Microswitches** : 1 or 2 gold plated SPDT with redundancy
- Connections** :
 - Process : M20x1.5, 1/2" BSPM
 - Electrical : 10M or specific gland and terminals
- Mechanism** : flexible arm



Pressure and Temperature switch

MN/NG Series



- Use** : any Navy boats
- Version** : relative, differential and absolute pressure, temperature.
- Ranges** : -1...+400 bar / -50...+125°C
- Microswitches** : 1 or 2 gold plated SPDT with redundancy
- Connections** :
 - Process : M20x1.5
 - Electrical : compression gland AGB/T, 10M or CMDEL and terminals
- Mechanism** : flexible arm
- Options** : line resistance, submersible

RAILWAY



Pressure and Temperature switch
G Series

- Use** : any train
- Version** : relative and differential pressure, temperature
- Ranges** : -1...+30 bar / 0...+120°C
- Microswitch** : 1 or 2 SPDT
- Housing** : polyarylamide housing -IP 65
- Mechanism** : flexible arm, vibrations proof
- Connection** :
 - Electrical connector FRB, ISO or customised terminals
 - Process : 1/4 BSPF or by specific flange
- Mounting** : flanged or direct

Quality certification
FRENCH NAVY

Certification
SNCF

SPECIFIC APPLICATIONS

ENERGY

Pressure and Temperature switch

J Series

Use : railway

Version : relative pressure, temperature.

Ranges : 0...+10 bar / -20...+210°C

Set point : set in workshop

Connection :

- Electrical : ISO 4400 connector, cable
- Process : 1/4 BSPF or by specific flange

Mounting : flanged or direct



Pressure and Temperature switch

PE Series

Use : power plant or electricity transmission

Version : relative, differential and absolute pressure, temperature

Ranges : -1...+1000 bar / -90...+600°C

Microswitches :

1 or 2 hermetically sealed SPDT

Connections :

- Process : 1/2" BSP M, 1/2 NPT M, 1/4" BSP F
- Electrical : connection at 40°, cable, terminals

Options : nuclear type painting, heat treated, helium test

Mounting :

according to power plant



Temperature switch

FE Series

Use : transformers

Version : temperature

25°...+115°C

Microswitches :

reinforced dielectric strength 2000V, shocks 5KV

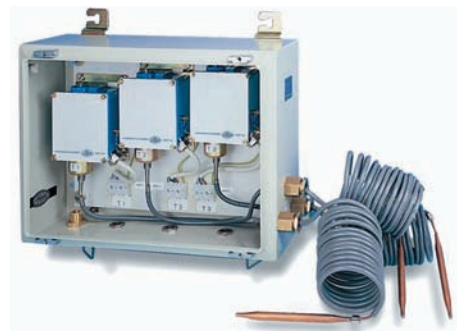
Capillary : armoured with PVC coating

Mechanism : flexible arm

Connection :

- Process : 1/2 BSPM, M18, M20, M22

Options : dielectric insulation of thermostatic sensor



CONTROL SECURITY

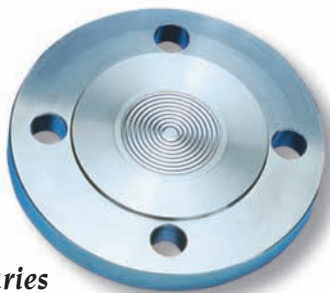
Qualification EDF
Agreement N°82

ACCESSORIES

Diaphragm seals

S300 to S773 Series

- Sensing element isolation against corrosion, impurities, viscosity, contamination.
- Several materials available (stainless steel, Tantalum, Hastelloy, PTFE, Monel...)
- Direct mounting or through capillary
- Threaded, welded or flanged process connection



Capillaries

- Protection against vibrations and pulsations.
- Protection against over-heating



Adaptators, fittings to weld :

A3500 - A3600 - A3700 Series

- Stainless steel, steel or brass
- Various process connections



Cocks

A3200 Series

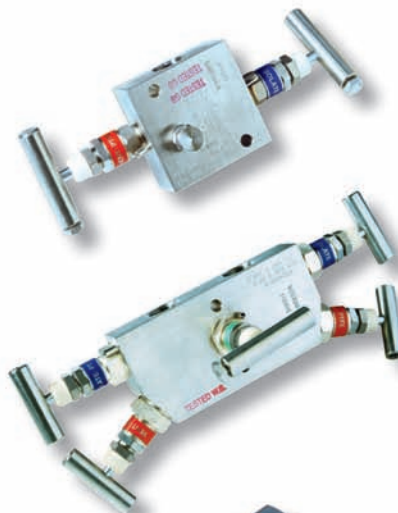
- Cone gauge cocks in steel or st. steel



Syphons

A3000 - A3010 Series

- To prevent over-heating



Manifolds

A3300 Series

- 2, 3, 5 ways.
- 316L stainless steel, Monel, PVDF
- Direct or remote mounting



Dampeners

A3100 Series

- Protection against pulsations



Limitors

A3400 Series

- Protection against pressure peaks



ACCESSORIES

Pressure gauges

M5000 to M5200 Series

- Relative, absolute and differential pressure
- Class 1 - 1.6 - 2.5
- Stainless steel housing IP 65 diameters : 63, 100, 150 mm
- Laminated safety glass
- Back or bottom connection
- Copper or stainless steel tube
- Ranges -1...+1600 bar
- **Options** : electrical contacts, oil filling, chemical seals



Industrial thermometers

T7000 - T7100 Series

- Bimetallic or gas expansion types
- Version : direct bulb or with capillary
- Stainless steel housing IP65
- Class 1
- Diameters : 100 or 150 mm
- Ranges : -200°...+600°C
- **Options** : electrical contacts, oil filling



ACCESSORIES

Indicators

GSI and IND Series

- Loop powered plug-in on DIN43650 connector
- Front panel mounting indicator, 4 and 4 1/2 digits, 4-20mA output signal, relays or SPDT outputs as option



Calibration bench

LP-MP-HP Series

- Portable, accurate
- Local checking
- One site calibration
- 3 ranges : - 1 +10 Bar
- 1 +25 Bar
- 0 +700 Bar
- Files connections on PC



EX

Measurement and control in hazardous areas

The use of certified electrical instruments is mandatory for installation located in explosive atmospheres.

According to hazardous areas, several protection methods are proposed :

Flameproof protection

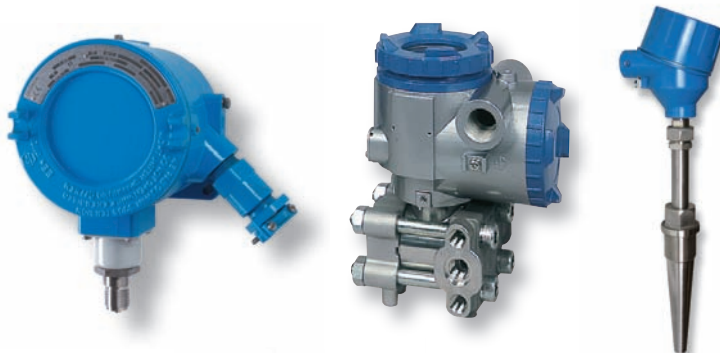
Ex d IIC T6

Explosion proof housing

Applicable for pressure and temperature switches P and F series and for temperature sensors S2000 and S4000 series

Equipment categories 2

For zones 1, 2, 21* and 22



With explosion proof microswitch(es)

Applicable for pressure and temperature switches F

Equipment categories 2* and 3

For zones 1, 2, 21* and 22



Flameproof and increased safety protection

Ex de IIC T6

Applicable for pressure and temperature switches P and F

Equipment categories 2* and 3

For zones 1, 2, 21* and 22



Offshore Application



EX

Intrinsic safety protection

Ex Ia IIC T6

Applicable for pressure and temperature switches P, F, G and Airgas, pressure transmitters TR/TA and GR/GA and temperature transmitters S2000 and S4000
Equipment categories 1*, 2* and 3
For zones 0, 1, 2, 20* 21* and 22



Associated device

[Ex ia] IIC

SAFE AREA

HAZARDOUS AREA



ATEX
94/9/CE

SERIES 6

INTRINSIC SAFETY

An Intrinsically safe equipment installed in hazardous area must be interfaced with a barrier, the assembly so called an IS loop. This barrier excludes spark, arc or any thermal effect which may ignite an explosive mixture in normal or abnormal operation conditions in hazardous area.

HAZARDOUS AREAS

Pneumatic version

These devices do not have any self-ignition sources and are not included in the scope of ATEX directive. For this reason, they can be installed in hazardous area.

Applicable for pressure and temperature switches P and F.



* according to selected options, equipment categories may be modified for Dust zones.



SIGNALS INTERFACES

BETWEEN SAFE AND HAZARDOUS AREAS



ATEX

Operating principle of this type of protection

This principle is based on the apprehension of the intrinsic safety circuit which is "a circuit within which no spark and no temperature effect produced under the prescribed test conditions may provoke the outbreak of fire in a given explosive environment." GEORGIN is hazardous environment equipment specialist and the company is a leading expert in intrinsic safety, offering its

customers a complete range of interfaces, all of which meet ATEX :

These interfaces gather relays and signal converters and are available for 3 different types of mounting :

- Rail mounting,
- Backplanes plug-in modules,
- Cards for 19" racks.

Rail mounting

Relays
RDN Series

On/Off signals relays

ABS housing - 70 x 100 x 21.5 mm

- Switch or proximity sensors (Namur) input
- 1 or 2 channels
- 24 - 48 Vdc / 110 - 230Vac
- Front face LED
- Loop checking
- Connection : plug-in cage clamp terminals

Options : alarms, transistor output

SIL2 Capability



Converters
Power supplies
BXN Series

Analogue signals converters
Power supplies for transmitters, lamps, solenoid valves

ABS housing - 90 x 135 x 21.5 mm

- Inputs : 4-20mA -Volts - Pt100 - TC - Potentiometer
- Compatible HART protocol
- 1 2 or 4 independent channels
- 24 - 48 Vdc / 110 - 230 Vac
- Front face LED

SIL2 Capability



SIGNALS INTERFACES

BETWEEN SAFE AND
HAZARDOUS AREAS

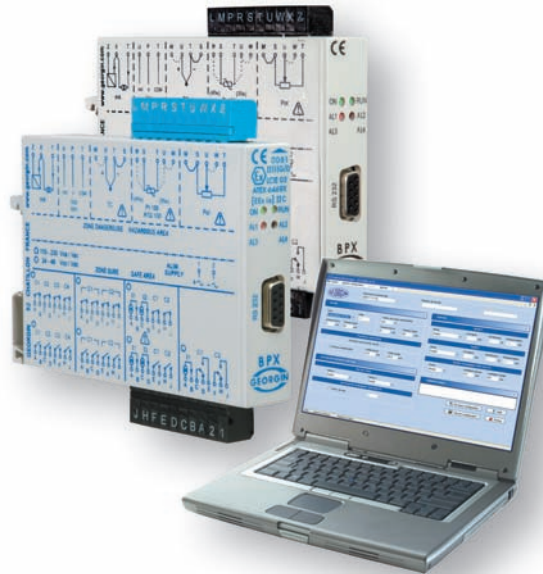


Programmable universal converter and trip amplifier ProgressX family

BPX Series

*Programmable converter and trip
amplifier for any
measurement signal types*

- ABS housing 90 x 135 x 21.5mm
- RTD100, TC, potentiometer,
mV, V, mA input
- 1 or 2 4...20mA outputs
- 2 or 4 programmable thresholds
- HART protocol compatible
- Processor, threshold and power LED's
- Configuration under Windows®
environment
- 24-48 Vdc / 110-230 Vac



Plug-in modules for backplanes

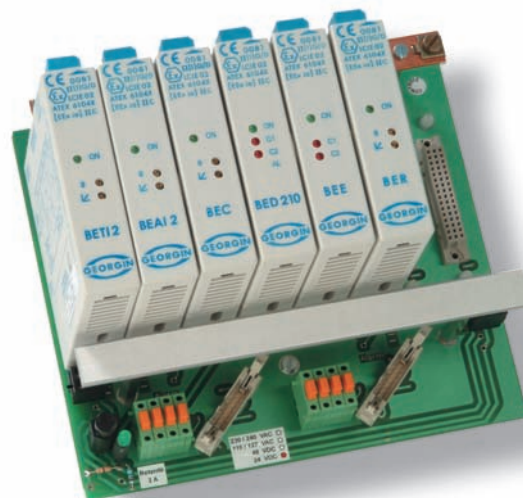
Relays - Converters - Power supplies BE Series

On/Off signals relays

Analogue signals converters

4-20 mA transmitter power supplies

- Compact series for mounting into system cabinets
- Modules number for each backplane
on request (8-16 ...)
- Plug-in ABS housing - 88 x 110 x 21.5 mm
- 1 or 2 independent channels
- Inputs : Switch or proximity sensor
(Namur), 4-20mA -Volts - RTD100 -
TC - Potentiometer
- HART protocol compatible
- **Options** : earth busbar - alarms -
tags - connection through connector for PLC's



**INTRINSIC
SAFETY**

SIL2 Capability



SIGNALS INTERFACES

BETWEEN SAFE AND HAZARDOUS AREAS

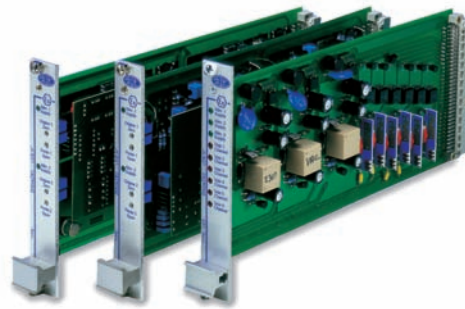


Eurocards for 19" rack

Relays - Converters - Power supplies
CE Series

On/Off signal relays
Analogue signal converters
4-20 mA transmitter power supplies

- Eurocards
- 14 or 21 cards by rack
- Individual supply by card
- Any type of signal : switches relays, proximity sensors (Namur), 4-20mA, Volts, Pt100, TC, potentiometer, ...
- Upto 6 channels by card (relay)
- Connections : soldering or screw terminals, flat cable and screw terminals
- Partition between I.S. and non I.S inputs/outputs
- Integration and wiring of control cabinets on request



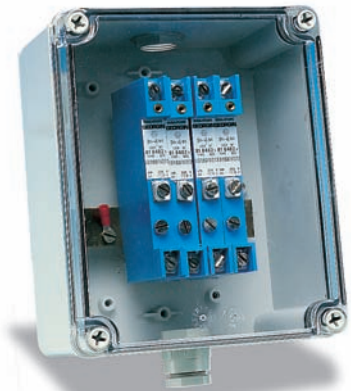
Zener barriers with earth reference

Zener Barriers
BZC Series

- Isolation through Zener diodes and earth grounded
- Protection of any process signal types
- Rail mounting
- **Option** : fitted into explosion-proof or weather-proof enclosures



Rail mounting



Weather-proof enclosure

INSTRUMENTS

IN HAZARDOUS AREAS



Intrinsically safe analogue indicators

GSI Series

- Located in zones 0, 1, 2, 20, 21, 22
- IP66 field mounting or panel mounting housing
- 3 1/2 and 4 1/2 digits display
- 4-20mA loop powered
- Front face programming
- **Options** : alarms, backlight, internal calibrator,...



4 1/2 digits indicator



Set point station with 3 1/2 digits indicator



3 1/2 digits indicator



Field mounting (3 1/2 or 4 1/2 digits)



Combined Indicator : 3 1/2 digits and bargraph (h=95 mm)



Plug-in indicator DIN 43650

INTRINSIC SAFETY



Intrinsically safe pilot lamps

VSI Series

- Located in Ex area
- IP 65
- LED lightening
- Colours : blue, yellow, red, green, white



REMOTE I/O



A T E X



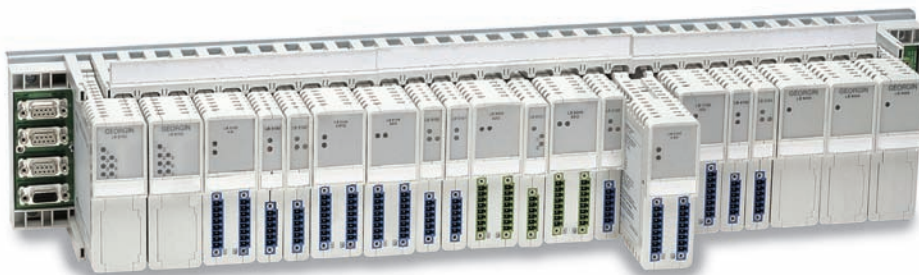
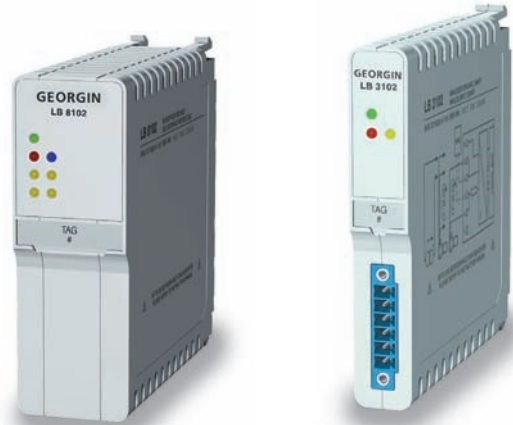
Overview

LB / FB systems

- Remote I/O for installation in zone 1 or 2 (gas)
- Modbus RTU, Profibus DP, DPV1
- FDT, DTM concept
- HART protocol via Profibus DPV1 or via service bus using standard software
- Output and input signals can be mixed on the same backplane
- Hot swapping
- Communication and power supply redundancy
- Diagnostic and self monitoring
- ATEX certification
- Link to all major DCS : Siemens, Honeywell, ABB, Emerson, Foxboro, Yokogawa, Schneider...

Zone 2 mounting
Local Bus system

- Plug-in modules on backplanes, DIN rail mounting
- Mounting in zone 2, or safe area in cabinets
- Binary, analogue, RTD100, TC, voltage, frequency signals
- IS and NIS interfaces available on the same backplane
- Up to 92 analogue signals and 184 digital signals on the same remote I/O station



REMOTE I/O



Zone 1 mounting

Field Bus system

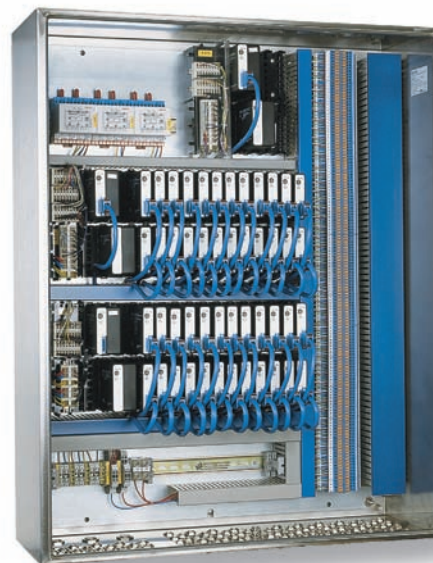
- Plug-in modules on backplanes in field housing IP66 certified
- Intelligent combination of hazardous area protection methods
 - Encapsuled modules for rough environments
 - Installation in zone 1 in polyester or stainless steel housing
 - Interfaces for EEx d devices
 - EEx i and EEx e interfaces can be mixed on the same unit
 - Not hot work permit required for maintenance
 - Up to 96 analogue signals and 192 digital signals on the same remote I/O station



Mounting

LB / FB series

- Installation in polyester or stainless steel housing
- Communication on copper or optic fiber
- Customized decentralized stations on request



**FIELD BUS
TECHNOLOGY**



OTHER LINES

Programmable signal conditioners and trip amplifiers
ProgressX Family

BPX Series

Analogue, low level signals converters and trip amplifiers type BPX

ABS housing 90x135x21.5 mm

- 4-20mA, mV, V, TC, Pt100, potentiometer
- 1 or 2 outputs 4-20mA
- 2 or 4 programmable thresholds
- HART protocol compatible
- Processor, thresholds and power LED's
- Power supply : 24-28 Vdc/110-230 Vac
- Configuration under Windows® environment



Trip amplifier
SDN Series

- Inputs :
Transmitters, 4-20 mA, 0-20 mA
- Outputs :
2 trips and LCD displays
- Power supply : 24 Vdc/110 Vac - 230 Vac
- Rail mounting



Galvanic isolated signal conditioners

BVN Series

- Inputs :
- Actuators
- 4-20 mA transmitters
- TC
- Pt100
- Potentiometer
- Variable resistance
- HART protocol compatible
- Power supply : 24-48 Vdc/110-230 Vac



Draught burner regulator

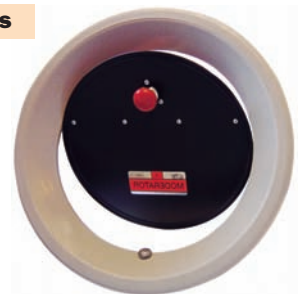
Moderator B Series

Domestic use



Moderator M Series

Industrial use



REFERENCES

OIL

Ineos, Exxon Mobil, Total, AGIP,
Sonatrach, QAPCO, Shell...

GAS

Air liquide, GDF, Linde, NIGC,
Gazprom...

CHEMICAL, PHARMACEUTICS AND COSMETICS

Arkema, Asmidal, Arak Petrochemicals,
Aventis-Sanofi, BASF, BASELL,
Clariant, GCT, Innovene, L'Oréal,
OCP, Rhodia, Solvay...

ENERGY

Areva TD, Alstom Power, EDF,
Electrabel, NTPC, VATEch, MAPNA...

NAVAL

DCN, Navantia, STM, SEMT,
Pielstick, Wartsilä...

AERONAUTIC - SPACE

EADS, CNES Kourou...

RAILWAYS

Alstom, Faiveley Transport, RATP,
Siemens, SNCF...

ENGINEERING

Amec Spie, Cegelec, Technip, Foster
Wheeler, Lurgi, Clemessy, Ingerop,
Sogequip...

AUTOMOTIVE INDUSTRY METALLURGY

Continental, ISPAT, Michelin,
Pechiney, PSA, Renault, Sollac...

FOOD PROCESSING INDUSTRY

Danone, Yoplait, Roquette, Tereos,
Kronenbourg...

INTEGRATORS

Ateliers François Atlas Copco,
Babcock, Burton Corblin, Cegelec,
Ineo, SNEF, Stein Energie...

Since it was founded,
GEORGIN has always
maintained a tradition of
very high quality.

GEORGIN has also set
up worldwide a technical
and commercial assistance
adapted to each request.

Today GEORGIN is a well
reputed specialist manufac-
turing a full range of
control and safety devices
designed for the industrial
market and mainly for
harsh environments.

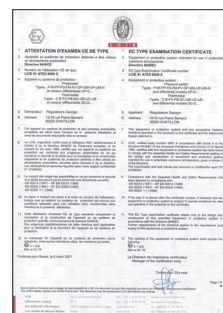
GEORGIN,
specialist
for harsh
environments



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Research, development, manufacturing
according to rigorous methods included
in a general QUALITY INSURANCE
program.

The specific products are subject to
**HOMOLOGATIONS, QUALIFICATIONS,
CERTIFICATIONS :**
National Defence (NATO F3363),
Railways (SNCF), EDF - GDF, Tractebel,
LCIE, PTB, VERITAS, CCC (China),
GGTN (Russian Federation)





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