Safety for Industrial Process

Short form

Authorized Distributor
MONILEK OILFIELD

E: sales@monilek.com
W: www.monilekgroup.com

www.georgin.com

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 1oo1 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

Pressure transmitters **GR - TR - VR - WR - SR** 6-7
Temperature sensors and transmitters **S2000, S4000, & TiXo** 8-9

CONTROL • SECURITY

PRESSURE

Pressure switches P Series F Series 10
U Series G Series C Series AIRGAS Series 11

TEMPERATURE

Temperature Switches P Series F Series 12
G Series U Series 13

Specific applications 14-15

ACCESSORIES 16-17

Diaphragm seals - Dampeners - Limitors - 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
➤ PLUG-IN MODULES - **BE** SERIES 21
➤ CARDS FOR 19" RACK - **CE** SERIES 22

- *Zener barriers* 22
- *Indicators - Lamps* 23

FIELDBUS TECHNOLOGY 24-25

Remote I/O systems

OTHER LINES 26

Signal conditioners
Draught burner regulators

The head office, 5 kilometres from Paris

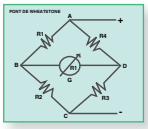
More than half a century... *supplying measurement and pressure or temperature control instruments has enabled the* GEORGIN *team of engineers to acquire know-how and experience which are expressed throughout this catalogue, beginning with the wide range of technologies used to provide solutions to each 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.

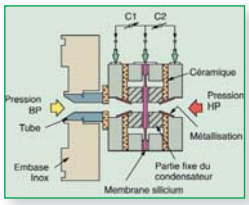


Under the effect of pressure a distortion is caused. This one leads to proportional variations in the resistance bridge to obtain a 4 to 20 mA electric signal.

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.

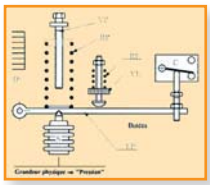
2 Instruments for control *and* safety

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 hold 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

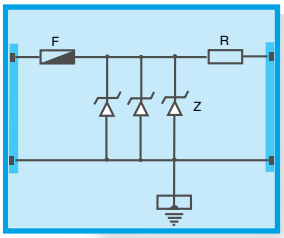
Securing sites equipped with electrical installations on which explosive atmospheres may occur is a prime requirement for any industrial company.
The electrical safety systems provided by GEORGIN concern industrial sites equipped with electrical installations on which explosive atmospheres may occur.
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 :

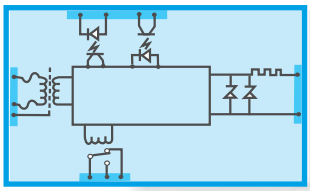
- The **"intrinsic safety"** equipment intended for installation in the dangerous area (sensor, loop indicator, pilot lamp...)
- The **"associated"** equipment where only the circuits directly connected to the explosive area are intrinsically safe. It is located in a safe area (signal conditioners, power 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.

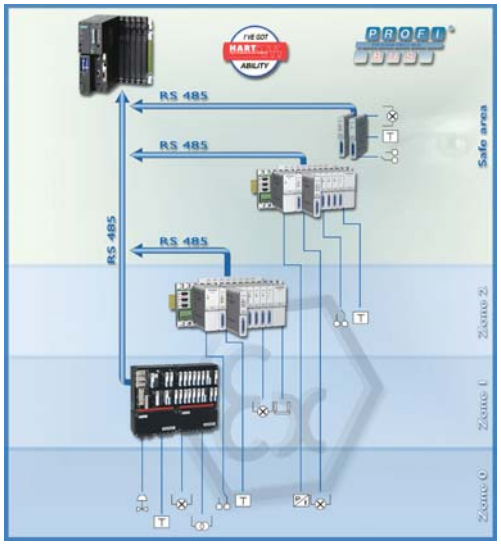
If the equipment's design allows it to remain safe even when a combination of 2 faults is present, it belongs to the "ia" category.

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 control 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).

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: ± 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.

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 temperature 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*
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 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 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

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 independant 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 redondancy*
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 redondancy*
Connections :
- *Process* : M20x1.5
- *Electrical* : *compression gland* AGB/T, 10M *or* CMDEL *and terminals*

Mechanism : *flexible arm*
Options : *line resistance, submersible*

Quality certification
FRENCH NAVY

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*

Certification
SNCF

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*

Qualification **EDF**
Agrement **N°82**

ACCESSORIES

Diaphragm seals
S300 to S773 Series

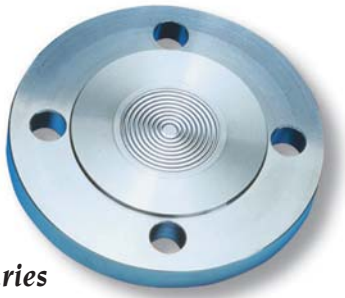
- Sensing element isolation against corrosion, impurities, viscosity, contamination.
- Several materials available (stainless steel, Tantalum, Hastelloy, PTFE, Monel...)
- Direct mounting or through capillary
- Threaded, welded or flanged process connection

Cocks
A3200 Series

- Cone gauge cocks in steel or st. steel

Manifolds
A3300 Series

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



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

Dampeners
A3100 Series

- Protection against pulsations

Adaptators, fittings to weld :
A3500 - A3600 - A3700 Series

- Stainless steel, steel or brass
- Various process connections

Syphons
A3000 - A3010 Series

- To prevent over-heating

Limitors
A3400 Series

- Protection against pressure peaks

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

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

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*

HAZARDOUS AREA

Associated device

[Ex ia] IIC

SAFE AREA

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.

ATEX 94/9/CE

SERIES 6

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*

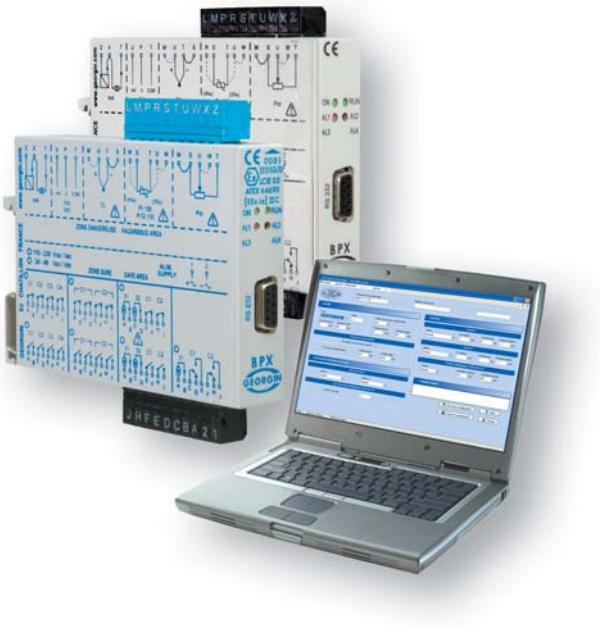
SIL2 *Capability*

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*), 4-20*mA -Volts - RTD100 - TC - Potentiometer*
- HART *protocol compatible*
- ***Options*** : *earth busbar - alarms - tags - connection through connector for PLC's*

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/BZG Series

- *All type of signals interfacing*
- *Simple or double model*
- *13mm tightness with 1 or 2 channels*
- *Installation in sale or hazardous (Zone 2) area ATEX and IECEx certifications*
- *Certification for a Safety Instrumented System (SIL2 or SIL3)*
- *Removable label holder on the front*
- *Current flow signalling Led on the front*

BZC

BZG

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

ATEX

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*

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*

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 wideworld a technical and commercial assistance adapted to each request. Today GEORGIN is a well reputed specialist manufacturing a full range of control and safety devices designed for the industrial market and mainly for harsh environments.

GEORGIN,
specialist
for harsh
environments

QUALITY ISO 9001-V2008

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)

Safety for Industrial Process

«Imagined, designed and made in France. »

Authorized Distributor
MONILEK OILFIELD

E: sales@monilek.com
W: www.monilekgroup.com

Régulateurs GEORGIN

France
14-16, rue Pierre Sémard - BP 107 - 92323 CHATILLON Cedex France
Tel. : +33 (0)1 46 12 60 00 - Fax : +33 (0)1 47 35 93 98 - Email : regulateurs@georgin.com

Belgium
Temselaan 5 - 1st floor - 1853 STROMBEEK-BEVER
Tel : 02 735 54 75 - Fax : 02 735 16 79 - Email : info@georgin.be

www.georgin.com