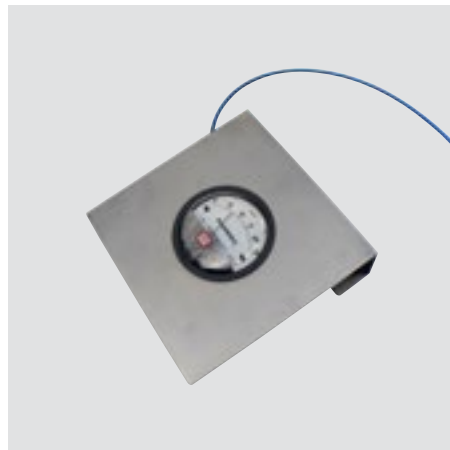


EXguard[®]

Mobile Gas Detection System



Features

The EXguard® is a further development of our TN2000-5 system, which is designed for use offshore, on refineries and onshore plants. The EXguard® is especially designed for use during hot work operation for onshore and offshore installations for detection, alarm and shutdown in case explosive gases are present.

The EXguard® system is especially designed for use in ATEX and IECEx zone 1 and 2 during hot work operation as well as inside habitats.

Upon detection of explosive gas, connected electrical equipment and pneumatic tools are automatically shut down, and audible and visual alarm will be given.



See product animation on the link below:



The EXguard® system consist of the following units:

	Page
– MCU (Mobile Control Unit)	4
– GD1-4 (Gas Detector 1-4)	3
– GD 5 (Gas Detector 5)	4
– PCU (Power Control Unit)	5
– OCU (Overpressure Control Unit)	6
– PMU (Pressure Monitor Unit)	7
– ASD (Air Supply Damper)	8
– ASU (Air Supply Unit)	9
– DPT (Differential Pressure Transducer)	10
– RAS (Remote Alarm Unit)	11
– UPS (Uninterruptible Power Supply)	12
– SDP (Sensor Dummy Plug)	13

MCU (Mobile Control Unit)



Ex protection type

ATEX	Ex II 2G Ex de IIC Gb
IECEX	Ex de IIC Gb
Certification	Presafe 17 ATEX 9500 X IECEX PRE 14.0017X issue 1

Technical data

Ambient temperature	-20 °C to +45 °C (Others upon request)
Ingress Protection	IP66
Frame & enclosure material	SS316L Acid Resistant stainless steel (Aluminum upon request)
Lifting lugs	Frame ready for lifting slings (Delivered with slings and lifting certificate upon request)
Electrical data	220-240 VAC 50/60 Hz, 16A
Inlet plug	Ceag GHG 511... (ABB, Stahl or others upon request)
Outlet socket	Ceag GHG 511... (ABB, Stahl or others upon request)
Power cable	35m H07RN-F 3G2,5 (Others upon request)
Dimension	68 x 128 x 63 cm
Weight	113 kg

The Mobile control unit have since the late 80's helped Operators and owners of oil and gas installation to perform Safe and reliable 'Hot Work' operations in hazardous areas.

The mobile control unit constantly monitors the presence of flammable gas in the area where the 'Hot Work' is being performed.

In case gas is detecting around the 'Hot Work' area, the mobile control unit will shut down the electrical and pneumatic tools connected to the system, as well as giving a local visual and audible alarm.

The mobile control unit has an integrated feature which allows the control unit to be connected to CCR (Central Control Room). The CCR can externally perform an emergency shutdown of the electrical and pneumatic tools connected to the mobile control unit, as well as receive alarms for pressure loss, emergency stop activated and gas detection.

GD1-4 (Gas Detector 1-4) & GD5 (Gas Detector 5)



The GD1-4 & GD5 gas detectors have been used together with the main control unit since its first arrival in the late 80's. The design with the IR point gas detector mounted inside a SS316L cable drum have through decades shown its durability and stability.

The GD1-4 detectors are used for surrounding the 'Hot Work' area. These must be placed where gas most likely will accumulate or be released. In an event where GD1-4 detects gas the control unit will shut down electrical and pneumatic tools. The habitat fan will still be running ensuring to keep a positive pressure inside the habitat to prevent combustible gas to enter.

The GD5 detector is designed to be placed in front of the habitat fan. If GD5 detects gas, the control unit will shut down electrical and pneumatic tools, also the habitat fan will be shut off and the air damper will shut close to ensure that no combustible gas enters the habitat.

The Simtronics GD10P which we have chosen as our primary choice are a benchmark for combustible gas detection on offshore installations.

The Simtronics GD10P are delivered with a 5 year warranty, and a 15 year warranty on the IR source.

The following concentrations will give approximately full-scale output on a standard GD10P IR Gas Detector calibrated for 100% LEL methane:

Gas		Output
Methane	CH ₄	100% LEL
Propane	C ₃ H ₈	20% LEL
n-Butane	C ₄ H ₁₀	25% LEL
n-Hexane	C ₆ H ₁₄	80% LEL
Toluene	C ₇ H ₈	70% LEL
Styrene	C ₈ H ₈	120% LEL
Xylene	C ₈ H ₁₀	55% LEL
Ethil Alcohol	C ₂ H ₆ O	12% LEL
Ethil Acetate	C ₄ H ₈ O ₂	25% LEL
Methanol	CH ₄ O	30% LEL
JP-4 Jet fuel	CH ₄	60% LEL
98 oct. Petrol	C ₇ H ₁₆	35% LEL
2. propanol	C ₃ H ₈ O	25% LEL
Turpentine		40% LEL
MET	C ₄ H ₈ O	35% LEL
Acetone	C ₃ H ₆ O	60% LEL
Propene	C ₃ H ₆	60% LEL
Ethylene	C ₂ H ₄	110% LEL
White spirit (regular)		60% LEL
Ethanol	C ₂ H ₆ O	15% LEL

Ex protection type

ATEX	Ex II 2G Ex de IIC T5/T6 Gb
IECEX	Ex de IIC T5/T6 Gb

Technical data

Ambient temperature	-40°C to +65°C
Ingress Protection	IP66
Detector & drum material	SS316L Acid Resistant stainless steel
Sensor type	Simtronics GD10P (Others upon request)
HC gas calibration	Methane (Others upon request)
Electrical data	24 VDC, 0-20 mA
Signal plug	Marechal DXN1 (Others upon request)
Cable	40m 3x1,5mm ² Radox Tenuis-TW/S (Other lengths upon request)
Dimension	30 x 38 x 44 cm
Weight	15 kg

PCU (Power Control Unit)



The Power Control Unit is used when higher currents than 16A are needed, i.e. during welding.

The PCU is controlled by the Mobile Control Unit, and is easily connected by a signal cable with plug.

The voltage selector switch on the unit makes it easy to choose the correct voltage for the installation where this unit shall be used.

There is an earth fault relay which will give shutdown and also a visual alarm on the front of the PCU.

There is also a green light in front of the unit which confirms that the unit is ready to operate.

Ex protection type

ATEX	Ex II 2G Ex de IIB Gb
IECEX	Ex de IIC Gb

Technical data

Ambient temperature	-20 °C to +45 °C (Others upon request)
Ingress Protection	IP66
Frame & enclosure material	SS316L Acid Resistant stainless steel (Aluminum upon request)
Lifting lugs	Frame ready for lifting slings (Delivered with slings and lifting certificate upon request)
Electrical data	400-690 VAC 50/60 Hz, 63A
Inlet plug	Ceag GHG 514... (ABB, Stahl or others upon request)
Outlet socket	Ceag GHG 514... (ABB, Stahl or others upon request)
Power cable	35m H07RN-F 5G16 (Others upon request)
Signal cable	20m H07RN-F 3G1,5 (Other lengths upon request)
Dimension	80 x 129 x 60 cm
Weight	95 kg

OCU (Overpressure Control Unit)



Ex protection type

ATEX	Ex II 2G Ex de IIB Gb
IECEX	Ex de IIB Gb

Technical data

Ambient temperature	-20 °C to +45 °C (Others upon request)
Ingress Protection	IP66
Enclosure material	SS316L Acid Resistant stainless steel
Electrical data	220-240 VAC supply / 24VDC signal
Signal plug	Marechal DXN3 (Others upon request)
Signal cable	20m 6 x 0,75mm ² Radox Tenuis-TW/S (Others upon request)
Dimension	28 x 28 x 18 cm
Weight	7 kg

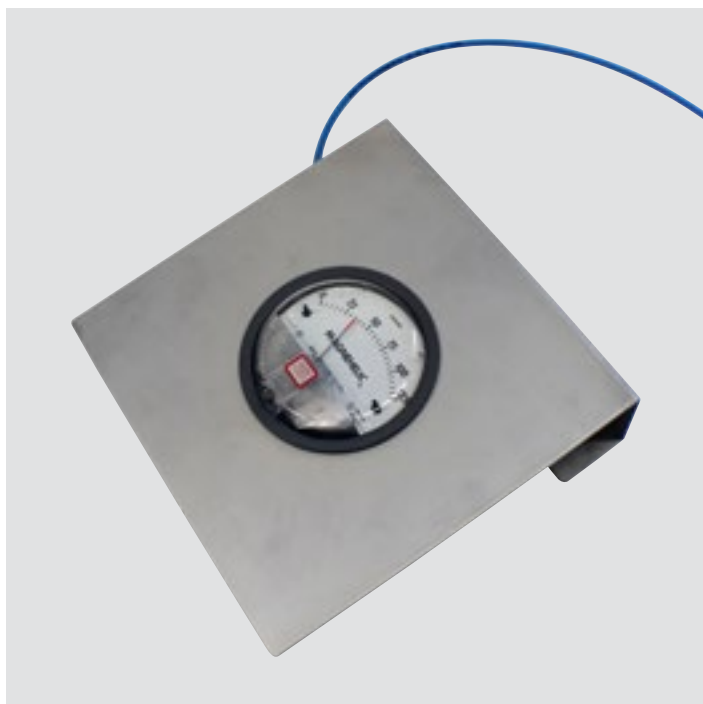
The Overpressure Control Unit are designed to monitor positive pressure inside the habitat, and automatically shut down electrical and pneumatic tools in case of pressure loss inside the habitat.

As a standard, we deliver this unit calibrated for shutdown in case of pressure inside habitat is <25 Pa for ≥ 30 seconds. This is based on recommendations from Norsok Z-015, Rev 4. Trigger point for pressure can easily be adjusted by customer on the differential pressure switch.

The OCU is easily connected to the Mobile Control Unit with a signal cable and plug.

The OCU is delivered with an override switch. The unit is also delivered with an external emergency stop button for the operator inside the habitat.

PMU (Pressure Monitor Unit)



Technical data

Ambient temperature	-6 °C to + 60 °C (-28°C with low temperature option)
Bracket & housing material	Manometer in aluminium and bracket in acid resistant stainless steel
Range	0 – 125 Pa (Others upon request)
Positive pressure	Hose nipple in brass
Negative pressure	Hose nipple in brass
Instrument air hose	3m 4mm teflon hose
Dimension	25 x 30 x 7,5 cm
Weight	2,5 kg

The Pressure Monitor Unit is used for external monitoring of the pressure inside the habitat.

The unit can either be used outside the habitat with a hose connected to positive pressure which goes inside the habitat. If the unit is to be used inside the habitat the hose needs to be connected to the negative pressure with a hose that goes out of the habitat.

The manometer is delivered with a bracket suitable for hanging on a scaffold.

ASD (Air Supply Damper)



The Air Supply Damper has been designed to safely shut off the air supply to the habitat, in cases where explosive gases are detected in the habitat fan. The damper shuts close to ensure that no explosive gases enter the habitat where hot work is being performed.

The disc inside the damper are made in bronze to ensure that no sparks are created when the dampers shuts close.

The ASD is easily connected to the mobile control unit with a signal cable and plug.

As a standard we deliver these dampers ready for connection to a Ø300 hose. Others dimensions are available upon request.

Ex protection type

ATEX	Ex II 2G Ex em IIC Gb
IECEX	Ex em IIC Gb

Technical data

Ambient temperature	-20 °C to +45 °C (Others upon request)
Damper material	SS316L Acid Resistant stainless steel (Aluminum upon request)
Junction box material	GRP Glass-fiber reinforced polyester
Electrical data	24 VDC, 45 mA
Signal plug	Marechal DXN1 (Others upon request)
Signal cable	12m H07RN-F 3G1,5 (Others upon request)
Dimension	47 x 47 x 38 cm
Weight	11 kg

ASU (Air Supply Unit)



The Air Supply Unit is designed to control pneumatic air that is used for pneumatic habitat fan and pneumatic power tools. The ASU is delivered with 1 of inlet and 2 of outlets, the inlets and outlets are delivered with a standard offshore claw connection.

In case the pneumatic outlet is not to be used, this outlet can easily be blinded with the included blind plug.

The ASU is delivered with 2 of magnetic valves, as the air supply for the habitat fan shall only be shut down in case gas is detected in front of the habitat fan. Air supply for pneumatic power tools will be shut down regardless of where the gas have been detected.

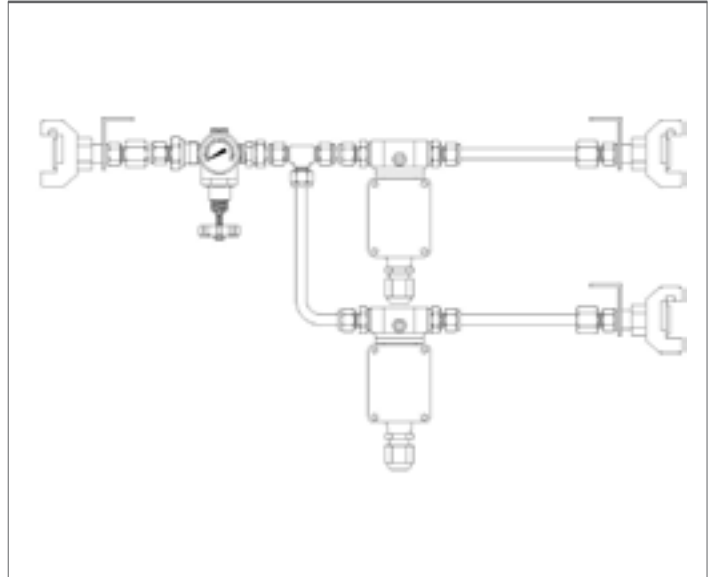
Ex protection type

ATEX	Ex II 2G Ex mb IIC Gb
IECEX	Ex mb IIC Gb

Technical data

Ambient temperature	-10°C to +55°C
Ingress Protection	IP66
Material	SS316L Acid Resistant stainless steel and brass.
Electrical data	24 VDC, 375 mA
Pneumatic pressure	0 to 16 bar
Signal cable	May be delivered as a "stand alone item upon request"
Dimension	62 x 34 cm

Air Supply Unit



RAS (Remote Alarm Station)



The Remote Alarm Station is a sounder / beacon which will work in parallel with the sounder / beacon located on the Mobile Control Unit.

The intended use is to give the operator inside the habitat a visual and audible alarm in case of emergency shut down.

The RAS unit is easily connected to the MCU with a signal cable and plug.

The RAS frame can also be supplied with a differential pressure switch and/or emergency stop button.

Ex protection type

ATEX	Ex II 2G Ex d IIC Gb
IECEX	Ex d IIC Gb

Technical data

Ambient temperature	-20 °C to +60 °C (+70°C upon request)
Ingress Protection	IP66
Material sounder/beacon	SS316L Acid Resistant stainless steel
Electrical data	24 VDC, 1 A
Signal plug	Marechal DXN1 (Others upon request)
Cable	40m 3x1,5mm ² Radox Tenuis-TW/S (Other lengths upon request)
Dimension	44 x 44 x 42 cm
Weight	18 kg

UPS (Uninterruptible Power Supply)



Ex protection type

ATEX	Ex II 2G Ex d IIC Gb
IECEX	Ex d IIC Gb

Technical data

Ambient temperature	-20°C to +45°C (Up to +55°C upon request)
Ingress Protection	IP66
Material enclosure	Aluminum, painted SS316L on request
Electrical data	24 VDC
Buffer capacity	12 kW
Max output current during buffer	15A
Signal plug	Marechal DXN1 (Others upon request)
Signal cable	H07RN-F 3G1,5 (Others upon request)
Dimension	31 x 28 x 20 cm
Weight	18 kg

The Uninterruptible Power Supply is designed to maintain safety functions and alarm in case of a power blackout.

In case of a blackout, the UPS will ensure that the magnetic valve for the pneumatic habitat fan is still open. This ensures a positive pressure is kept inside the habitat so that no potential explosive gases enter the hot work area inside.

During buffer time, the operator inside the habitat has the opportunity to cool down any materials that have a potentially hot surface.

The UPS is a small unit which is designed to hang onto the frame of the mobile control unit. The UPS is easily connected to the MCU with 2 cables and plugs.

The enclosure is fitted with a green pilot light which will indicate when the UPS is fully charged.

SDP (Sensor Dummy Plug)



The Sensor Dummy Plug is designed for use when there is no need to use all 4 of gas detectors.

The sensor easily replaces a gas detector, and will simulate a gas detector which is operating.

The sensor dummy plug is easily connected to one of the GD1-4 outputs on the MCU.

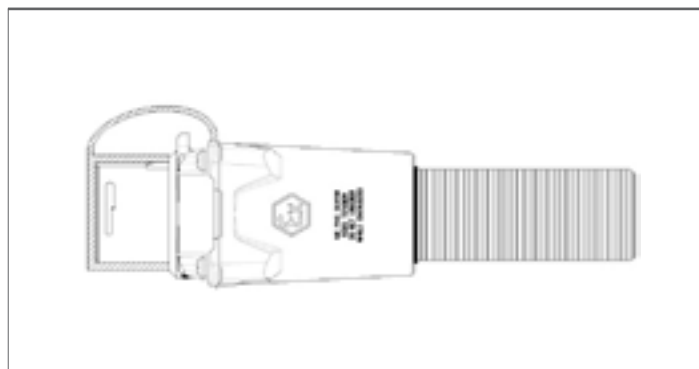
Ex protection type

ATEX	Ex II 2G Ex d IIC Gb
IECEX	Ex d IIC Gb

Technical data

Ambient temperature	-20°C to +45°C
Ingress Protection	IP66
Material	SS316 Glass-fiber reinforced plastic
Electrical data	24 VDC, 4 mA
Signal plug	Marechal DXN1 (Others upon request)
Dimension	22 x 6 x 6 cm
Weight	435 g

Sensor Dummy Plug



Hazardous area information & terminology ATEX Directive

The ATEX Directive, derived from the French "AT mospheres EXplosibles" and formally known as 2014/34/EU, contains the ESR (Essential Safety Requirements) to which electrical equipment and protective systems used within potentially explosive atmospheres must conform.

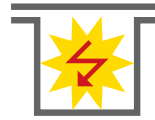
The new ATEX Directive currently in place within the European Union was made mandatory from 2016. Primarily intended for manufacturers of hazardous area equipment for use in the presence of flammable gases, vapours, fumes or dusts, the directive requires a quality management system to be implemented.

Procedures for the design, manufacture and verification of products are to be approved by a notified body (DNV GL Presafe, Intertek etc.) and all equipment conforming to the new ATEX directive will feature CE and Ex Marking.

Zone Classification with the presence of GAS

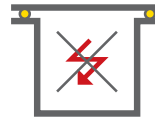
Zone 1 (Category 2)	An area in which explosive gas is likely to be present during normal operation of the plant.
Zone 2 (category 3)	An area in which explosive gas is not continuously present, but may exist for a short period of time.

Applicable EX protection



Ex d Protection

Parts, which can ignite a potentially explosive atmosphere, are surrounded by an enclosure, which are designed to withstand the pressure of an internal explosion and to prevent the propagation of the explosion to the atmosphere surrounding the enclosure.



Ex e Protection

for electrical components that do not spark under normal working conditions but where measures are applied to prevent high temperatures and the occurrence of arcs and sparks internally.



Ex m Protection

Parts that could ignite a potentially explosive atmosphere by means of heat or sparks are embedded in a sealing compound such that the potentially explosive atmosphere cannot be ignited. The compound is resistant to physical, electrical, thermal and chemical influences.



BARTEC

BARTEC TECNOR AS
Vestre Svanholmen 24
4313 Sandnes
Norway

Phone: +47 5184 4100
sales@bartec-technor.no

bartec.no