

CERBERUS

FLAMMABLE GASES MONITORING SYSTEM



GALILEO TP PROCESS EQUIPMENT S.r.l.

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Introduction

CERBERUS NF is a gas monitoring system for flammable gases like R600, R290 and R32. CERBERUS also monitors the ventilation system of potentially dangerous areas and enables/disables the power supply for the storage system, the charging equipment, the ventilation equipment and all electrical equipment installed in a Hydrocarbon charging area. When detecting flammable gases CERBERUS is provided with gas monitoring modules. Each module is composed of a control electronic board, a display and an infrared sensor that is installed inside of a hydrocarbon containment area. The control electronic boards are conveniently installed inside the CERBERUS electric control panel. This way, the isobutene levels present in the monitored areas are always easily displayed. The maximum number of gas monitoring modules which can be installed on CERBERUS is 5, supporting up to 13 gas monitoring modules. The standard configuration of CERBERUS foresees the minimum of three gas monitoring modules (more available based on local codes at additional cost), which usually are installed in potential collection points relative to the charging area.

Some examples are, but are not limited to:

- The enclosure of the charging machine;
- Charging area around / under the charging filler;
- Welding area around the charging unit;

A technical evaluation must be performed to define the number and the position of the sensors which are required by the specific application.

CERBERUS NF acquires the signals from a set of gas sensors (only the sensors indicated with (*) are supplied with the CERBERUS NF):

- Gas presence sensor (*);
- Differential pressure sensor installed on the charging machine;
- Temperature sensor, installed on the charging machine, to control the safety valves;
- Start-up switches for the aspiration system (WIND) which verifies its correct functioning;
- End-course switches for correct closing of the protection fences;
- General emergency switch;

CERBERUS NF gives the following output signals:

- Gas alarm contact (30% LEL) + red light + acoustic alarm;
- Gas pre-alarm contact (15% LEL) + orange light;
- Operating signal for the WIND ventilation system to double the fan speed in case of pre alarm or alarm;
- Ventilation problem contact;
- Electric power input to the charging machine or other electric equipment;
- Electric power input to the supply/distribution gas system;

According to the situation detected, CERBERUS performs the following operations:

CONDITION OPERATION

- % R600 in air < 15% LEL * correct functioning of the system
- 15% LEL * < % R600 in air < 30% LEL *
Pre-alarm signal: It generates a signal sent to the ventilation system control panel which doubles the speed of the ventilation system.
- % R600 in air > 25% LEL *
Alarm signal: CERBERUS disables the power supply to all connected equipment. Disconnection of the supply line of Isobutene (all the automatic sectioning valves must be normally closed). It generates a signal sent to the ventilation system control panel which doubles the speed of the ventilation system.

Pressing of the Isobutene Emergency Stop Button: CERBERUS disables the power supply to all connected equipment. Disconnection of the supply line of isobutene (all the automatic valves must be normally closed). It generates a signal sent to the ventilation system control panel which doubles the speed of the ventilation system. It also monitors for lack of depression in the charging machine.

* LEL: low explosion level.

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3 / 3

REMARKS

In stand-by conditions, the CERBERUS NF (for the ventilation system) must always be electrically supplied to be able to generate pre-alarm and alarm signals in order to run the ventilation system. For this reason, it is advisable to equip CERBERUS with a UPS unit (optional).

Data sheets

- Dimensions (HxWxL) 500x600x520 mm
- Power supply 230V 50Hz 1ph
- Power consumption 125 W (with 3 sensors)
- Ventilation alarm inlet voltage free contact (N.C. in normal conditions)
Eex-ia protected
- Overpressure alarm inlet voltage free contact (N.C. in normal conditions)
Eex-ia protected
- External enable inlet voltage free contact (open if the ventilation system is in stand-by conditions)
- Emergency inlet voltage free contact

- Pre-alarm outlet (15% LEL) Voltage free contact (Max 250Vac – 3A)
- Alarm outlet (30% LEL) Voltage free contact (Max 250Vac – 3A)

**data subject to change*

Built in compliance with the Machinery Directive 2006/42/EC, Low Voltage Directive 2006/42/EC, Directive on Electromagnetic Compatibility 2004/108/EC.