

Operation

Aspirating smoke detector AMX4004 WEA for wind energy plants

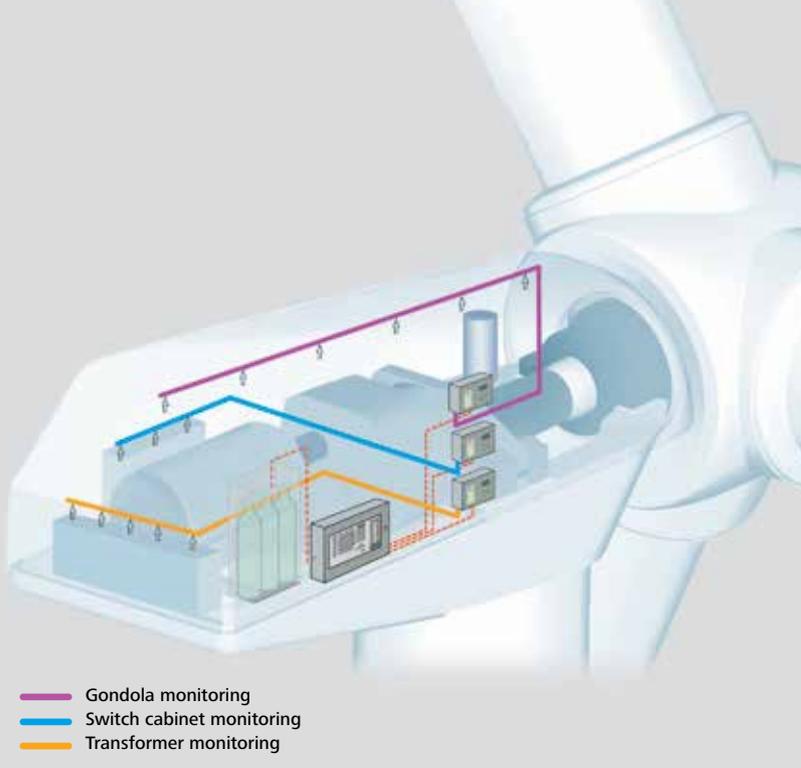
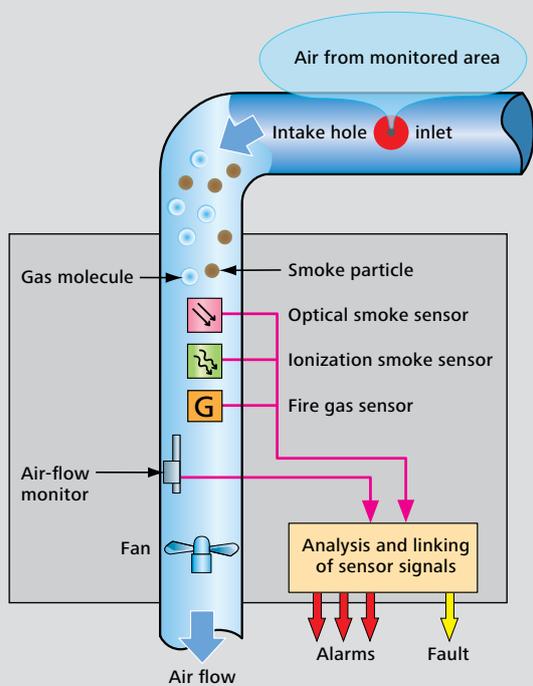
*Cool down.
Fire Protection by*

MINIMAX

► Product ► Use + Advantages

- ▶ The AMX4004 WEA is an aspirating smoke detector in a sturdy industrial design especially for the particular requirements and conditions encountered in wind energy plants. Its purpose is to detect fires as they develop.
- ▶ The device continuously takes samples of the air in the areas monitored, which is piped to the sensors. The sensors analyse the smoke aerosol and optionally fire gases as well. Up to three sensors, which can be used in combination, ensure reliable and early warning of fire with an attendant high level of security against false alarms.
- ▶ An integrated air-flow monitoring system also ensures that monitoring functions faultlessly when the switch cabinets are cooled.
- ▶ The aspirating smoke detector is equipped with an automatic adjustment mode to adapt it automatically to the ambient conditions.
- ▶ The AMX4004 WEA aspirating smoke detector was developed specially for use in wind energy plants. The robust industrial design means that it is unaffected by the typical raw service conditions to which wind energy plants are subject.
- ▶ The AMX4004 WEA is a reliable and durable piece of equipment which will withstand vibration as well as extreme temperature variations and climatic conditions:
 - penetration by salt water and moisture (e.g., offshore)
 - cold temperatures, ice and snow
 - lightning strike
 - industrial atmospheres (e.g., in the vicinity of refineries and chemical factories)
- + Multiple analysis makes a staged fire alarm possible.
- + The active piping of the air samples permits the device to be positioned in any suitable place in the nacelle or the tower.
- + The use of different sensors will lead to more reliable fire detection and a high level of security against false alarms.
- + Comparison with typical malfunction characteristics is carried out by means of intelligent evaluation algorithms.
- + The robust industrial design is impervious to the typical raw service conditions encountered by wind energy plants.
- + The integrated automatic adjustment mode enables it to adapt it optimally to the ambient conditions.
- + The AMX4004 WEA is approved by VdS and certified by GL.

Function



- ▶ Inside the casing of the detector, a fan generates a partial vacuum, which continuously extracts air samples from the area being monitored through a connected system of pipework with tiny perforations. These air samples are led through a series of three different sensors which analyse them for typical fire characteristics – smoke aerosols and CO conflagration gases. The sensor signals are then processed by an intelligent evaluation unit. The transmission of signals is carried out in accordance with the configuration of the particular system.

An integrated air-flow sensor monitors the air aspirated for a continuous flow volume. Exceeding, or failing to reach the threshold values for which the plant has been specifically configured leads to the fact being shown on the LCD screen and transmitted as a general fault.

- ▶ The AMX4004 WEA can be operated either through a fire detection control panel or by means of potential-free contacts to a freely-programmable control (PLC).

- ▶ Installation and operation of wind energy plants demand a major capital investment, which can be put at risk by a tiny electrical or mechanical defect causing total destruction by fire. The greatest fire risk emanates from electrical switch cabinets and electronic controls. Apart from lightning strikes when the lightning conductors are defective, a further particular fire risk is presented by all the mechanism including the hydraulic equipment and braking system. Fire spreads in these areas particularly rapidly. A smouldering fire caused by a defective or over-loaded component will nearly always lead to an open outbreak of fire which in the worst case can result in a total loss.
- ▶ The AMX4004 WEA can control an automatic extinguishing system by means of connection to a fire control centre and if necessary shut down the wind energy plants. Through early warning of out - breaks of fire and possible disastrous consequences including in very extreme circumstances the destruction of the wind energy plant can be avoided.

Technical data

Operating voltage	24 V DC (18 V DC to 30 V DC)
Quiescent current	approx. 390 mA (including fan but not heating)
Alarm current	approx. 420 mA (including fan but not heating)
Heating power consumption	approx. 1.0 A
Operating temperature	(-30 °C)*-20 °C to +50 °C
Storing temperature	-25 °C to +65 °C

* with insulated housing

Please see corresponding technical data sheets for detailed information.

Protection class IEC 529	IP 54 (without air inlet or outlet)
Casing measurements	280 mm x 170 mm x 90 mm WxHxD
Material housing	Die cast aluminum
Aspiration pressure	max. 450 Pa
Pipe diameter	outside 25 mm, inside 22 mm
Aspiration pipe length	max. 100 m total length (max. 50 m as single run)
Approvals	VdS, GL

Subject to technical alterations

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