Experts in fire protection

AMX4004 WEA
Smoke detector for wind energy plants

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 and purpose is to detect fires as they develop.

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 is a reliable and durable piece of equipment which will withstand vibration as well as extreme temperature variations and climatic conditions:

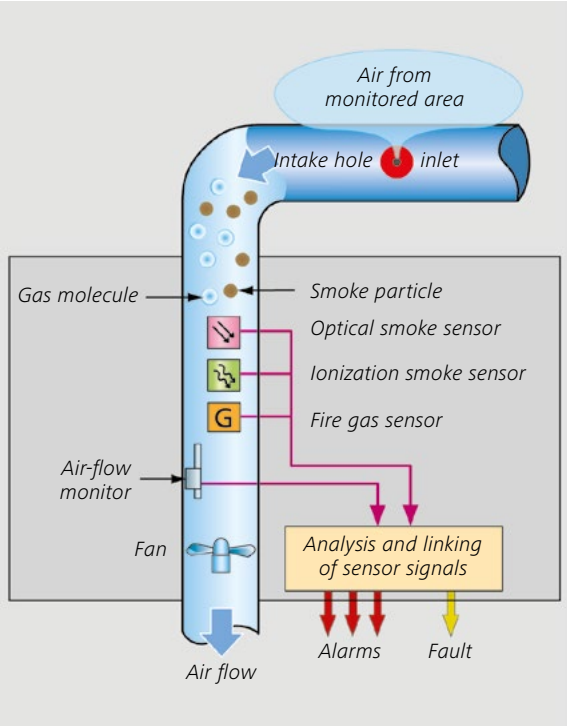
- penetration by salt water and moisture (e. g., offshore)
- cold temperatures, ice and snow
- lightning strike
- industrial atmospheres (e. g., in the vicinity of refineries and chemical factories)

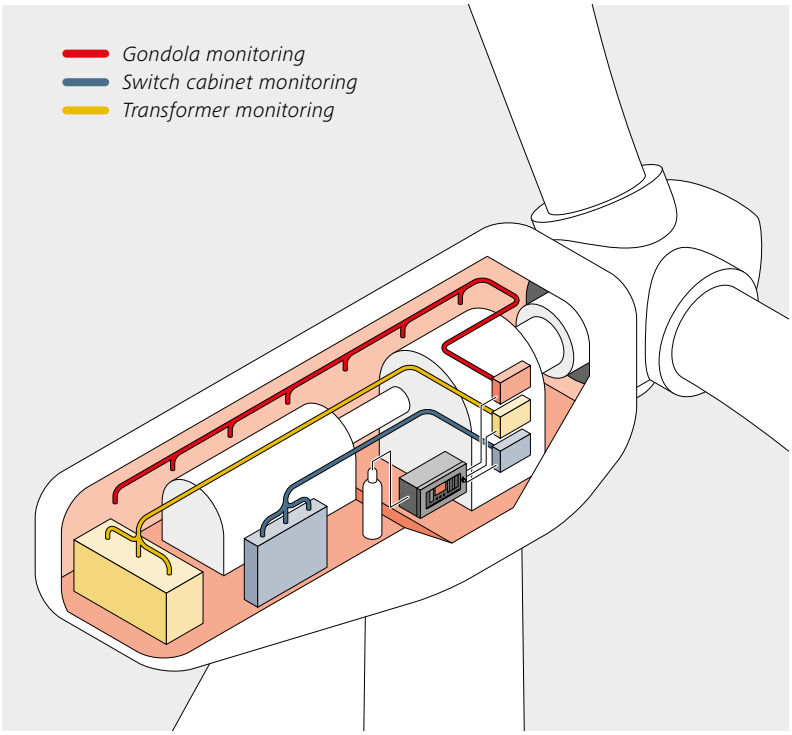
Advantages at a glance

- Multiple analysis makes a staged fire alarm possible.
- Free positioning in any suitable place in the nacelle or the tower.
- More reliable fire detection and a high level of security against false alarms.
- Impervious to the typical raw service conditions
- The integrated automatic adjustment mode enables it to adapt it optimally to the ambient conditions.
- VdS approval requested

Functionality

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.





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 sen-sors 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).

Risks

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 par-ticular 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 overloaded 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 outbreaks of fire and possible disastrous consequences including in very extreme circumstances the destruction of the wind energy plant can be avoided.

FM APPROVED

www.minimax.com

PB44Fe/03.23/0/09.23/CF · Printed in Germany · Subject to technical alterations