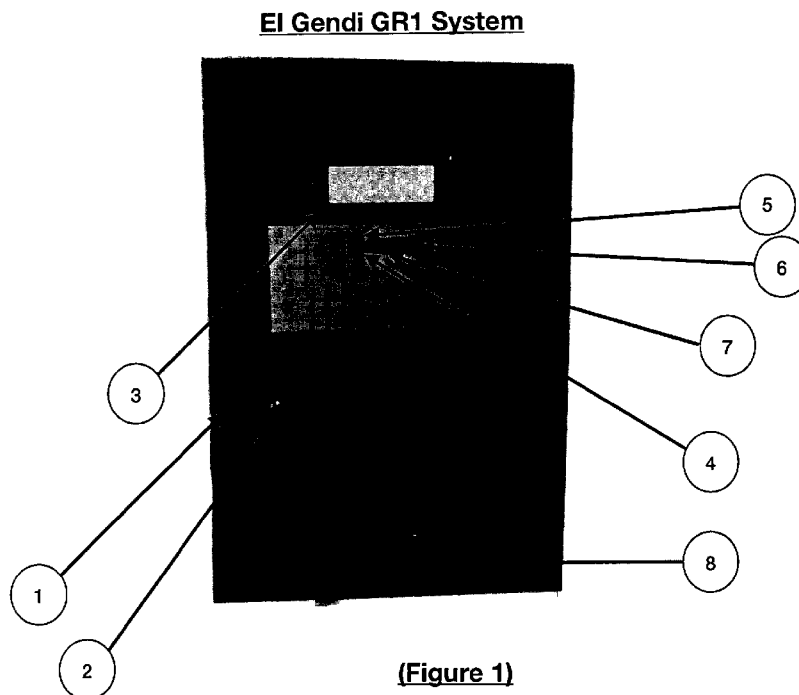




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(54) Title: ELECTRONIC CONTROL PANEL FOR FIRE EXTINGUISHING BALLS



(57) Abstract: The system works on various sizes of fire extinguishing balls and it is automatic and electronic. It starts with an electronic Panel (board) that is programmed and linked to any type of fire sensors and detectors, whether single or multiple, to read different fire hazards when they occur. It ends with a Pulsator (Thermal Actuator) that is fixed on fire extinguishing balls. When the Panel reads the fire hazard according to the programming, it gives a signal to the Pulsator to give a suitable temperature which is capable of activating the fire extinguishing balls automatically without the need to wait for the flame resulting from the fire hazard to touch the fire extinguishing balls to be activated as known about the mechanism of action of fire extinguishing balls and at the same time The system panel can be linked to any type of main fire alarm panels in the facility to give notification of the fire hazard and activate fire extinguishing balls.



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DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT,  
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## AMENDED CLAIMS

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**Amended claims:**

1. An electronic fire suppression system module (El Gendi GR1 System Module), comprising:

- a metal housing;
- an electronic control panel disposed within the housing, including a micro IoT control chip configured for both wireless communication with a facility Wi-Fi network and wired connection to an internal alarm network;
- a plurality of sensor interfaces for receiving signals from multiple fire hazard detectors, a control chip further configured to perform sensor signal fusion to reduce false activations;
- a 220-volt AC input and an associated circuitry including low and high voltage inputs/outputs, a power transistor, and a fuse for disconnecting high current;
- a battery system comprising a set of lithium-ion batteries and an integrated battery management system for regulating battery charging and discharging; and
- a means for generating an electrical activation signal to trigger fire extinguishing actuators for rapid fire suppression.

2. The module of claim 1, further comprising an externally mounted cover on the housing that includes:

- integrated LED indicator lights;
  - a reset key;
  - an on/off switch; and
  - a quick-scan interface for configuring wireless network connection parameters,
- whereby the cover not only provides visual status indication and manual control functions but also facilitates a simplified network configuration process.

3. A fire suppression actuator assembly, comprising:

- a pulsator including a metal fixing strip, an electronic board, and a heat generating element formed by a nickel-chrome frame configured to produce heat sufficient for activating a fire extinguishing ball;
- a fiberglass insulating layer positioned between the electronic board and the heat generating element to protect the board from excessive thermal exposure; and
- a signal receiving rosette adapted to receive the electrical activation signal from the fire suppression system module,

whereby the assembly reliably activates an indefinite number of the fire extinguishing ball upon receipt of the signal while ensuring electronic component protection through optimized thermal isolation.