

## **POF028: General platform presentation**

### **Burn Saver Device for Firefighter PPE Protection**

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#### **Abstract**

Personal protective equipment (PPE) worn by firefighters protects them against burns and hazardous environments. Unfortunately, this equipment works so well that it decreases the firefighter's situational awareness; in particular their ability to notice rapidly increasing temperatures. This is especially dangerous with respect to the polycarbonate facepiece of the SCBA, which is easily damaged at temperatures as low as 150°C. TDA's Burn Saver device is designed to warn firefighters when their SCBA facepiece is in danger of thermal damage.

Although current thermal sensor technologies have the ability to respond to changing temperatures, no commercial devices can respond fast enough to ensure that the firefighter is not exposed to temperatures that exceed the capabilities of their PPE (especially the polycarbonate facepiece of the SCBA). TDA Research, Inc. (TDA) has designed, fabricated and is testing a version 2 prototype of a device we call the "Burn Saver" that rapidly responds to dangerously high air temperatures and infrared radiation hazards that is low cost, portable, durable, and accurate. In the event of a high temperature situation, the device will provide a visual alarm along with wireless notification to the command center. In collaboration with our commercial PPE manufacturing partner, we will develop a low cost, rugged, Burn Saver device for NFPA certification.

TDA's device can rapidly respond to both hot ambient conditions and infrared radiation hazards because of the unique design of its thermal sensor. The device is battery powered, and has dimensions of approximately 6 cm by 6.5 cm by 2.5 cm. The sensor element is protected with a small metal cage. Because temperatures can unexpectedly and rapidly rise to dangerous levels during a fire, TDA's device is designed to detect these thermal dangers in less than 10 seconds.