

Solar-Photovoltaic Fire Detection Guide

Envisage access to “thousands of point detectors” with a single wire install

Integrated photovoltaic (PV) systems on roof and building facades are becoming increasingly common and this trend is expected to continue to rise. Although PV installations are widely regarded as safe technologies, a notable increase in fire-hazards derived from PV installations must be taken into account when carrying out risk analysis and designing fire protection systems, whether active or passive.

During the last decade, the installation of PV systems has been broadly adopted on a large scale throughout national and international territories. The adoption of this solution has found wide acceptance thanks to its environmental sustainability characteristics since it allows electricity to be produced in a sustainable fashion, in addition to reasonable return of investments based on Kw/h (kilowatt hours) produced.



Common causes of PV fire include the following:

- Inaccessible combustible spaces hidden in the gap between the solar panels and the combustible ceiling can propagate the spread of fire and deteriorate the effectiveness of the fire suppression/extinction efforts.
- Arc discharge events in boxes and DC wiring.
- PV module Hot spots and surfaces

- Hazards generated during panel maintenance activities or lack of maintenance thereof.
- Accumulated dirt or vegetation growth where PV modules are installed at ground level.
- Vandalism.
- Late fire detection as PV modules are usually installed in outdoor areas which aren't generally covered by the standard fire alarm detection systems.



The appropriate and rapid detection of fires in PV installations are essential to prevent the unnecessary spread of fire, which can result in increased material losses.

Organisations must therefore establish adequate due diligence when incorporating PV into projects and infrastructure.

