sperosens

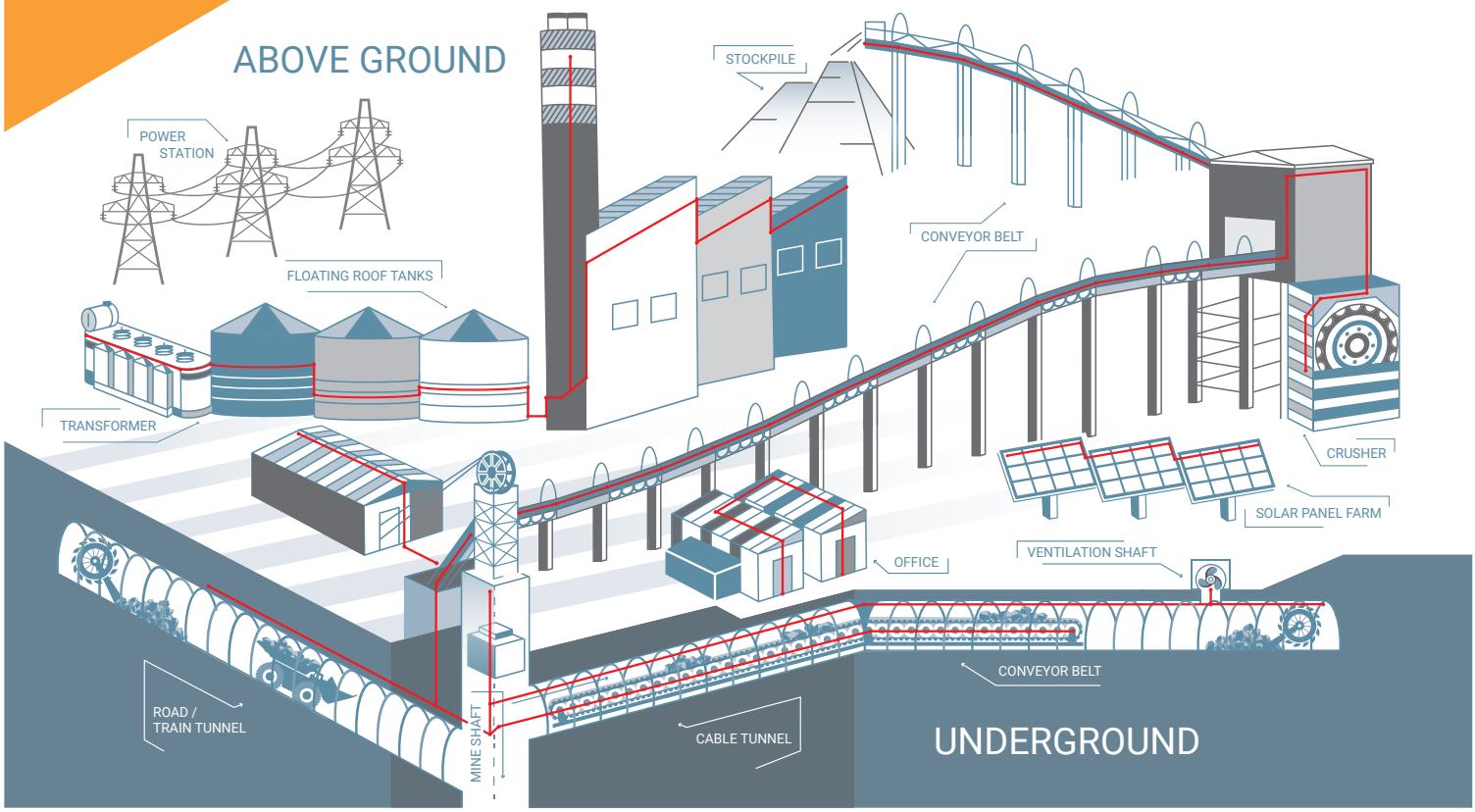
safety through innovation

Distributed Temperature Sensing (DTS) using optical fibre

Monitor 10 000 temperature points over a 10 km fiber optic cable on a single channel.

- Fast and accurate temperature measurement in harsh environments.
- Easy to install and integrate with external systems.
- Maintenance limited to a single instrument - virtually maintenance free.
- Produces temperature profile along entire sensor cable length.

AP SENSING
advanced photonic



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AP Sensing can monitor temperature under harsh conditions over long distances to optimize maintenance, detect fires and overheating, and measure environmental temperature.

AP SENSING's linear heat series minimizes your operational costs when compared to individual sensors. Reliable temperature measurements are obtained by using a standard fiber optic sensor cable. Fiber optic cable is passive and requires no maintenance and is immune to electromagnetic interference.

As an example: 10km of fiber optic cable can be used to sense temperature at 1-meter intervals with an accuracy of 1°C, providing users with 10 000 temperature readings using one measuring device.

The standard robust fiber optic sensor cable can withstand long-term operating temperatures between -40°C to +85°C, as well as short-term exposure to temperatures up to 150°C. Other fiber cable options are available for extreme conditions.

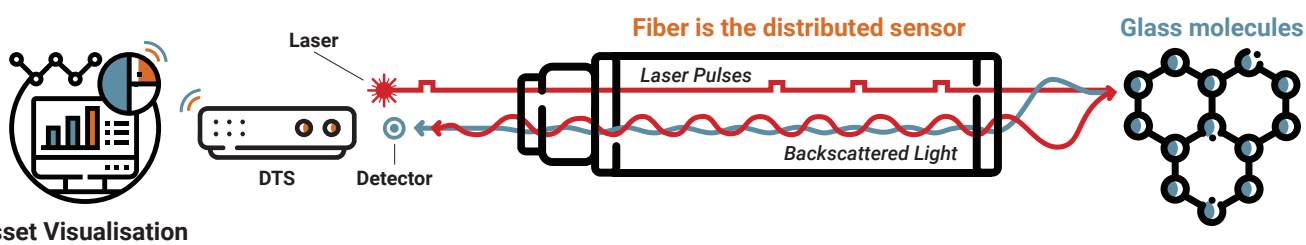
TECHNOLOGY

An infra-red laser pulse train is transmitted through the optical fiber. The incident light energy is back-scattered from the glass molecules throughout the entire length of the fiber.

These minute light signals contain information about the temperature of the glass at any given point in the fiber. The back-scattered light signals are analysed by using the Raman effect *.

The position of the temperature reading along the fiber length is determined by measuring the arrival timing of the returning light pulse (similar to a radar echo). This method is called Optical Time Domain Reflectometry (OTDR).

**A quantum mechanical effect first discovered by an Indian physicist Sir Chandrasekhara Venkata Raman (1888 – 1970) in 1922. Wavelength of light scattered from optical crystals changes and varies as per the temperature of the crystal.*



Asset Visualisation

APPLICATIONS INCLUDE:

- Power Cable Monitoring
- Fire Detection (EN54-22 certified)
- Tunnel temperature monitoring (e.g. Mine, road, rail and cable tunnels)
- Pipeline Monitoring (Leak detection)
- Conveyor belt monitoring
- Cable rack monitoring

ADVANTAGES:

- Fast and accurate
- Easy to install
- Immune to EMI, dirt, dust and humidity
- Virtually maintenance free
- Multiple alarm types and criteria
- Facilitates fast response to events

FOR MORE INFORMATION:

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