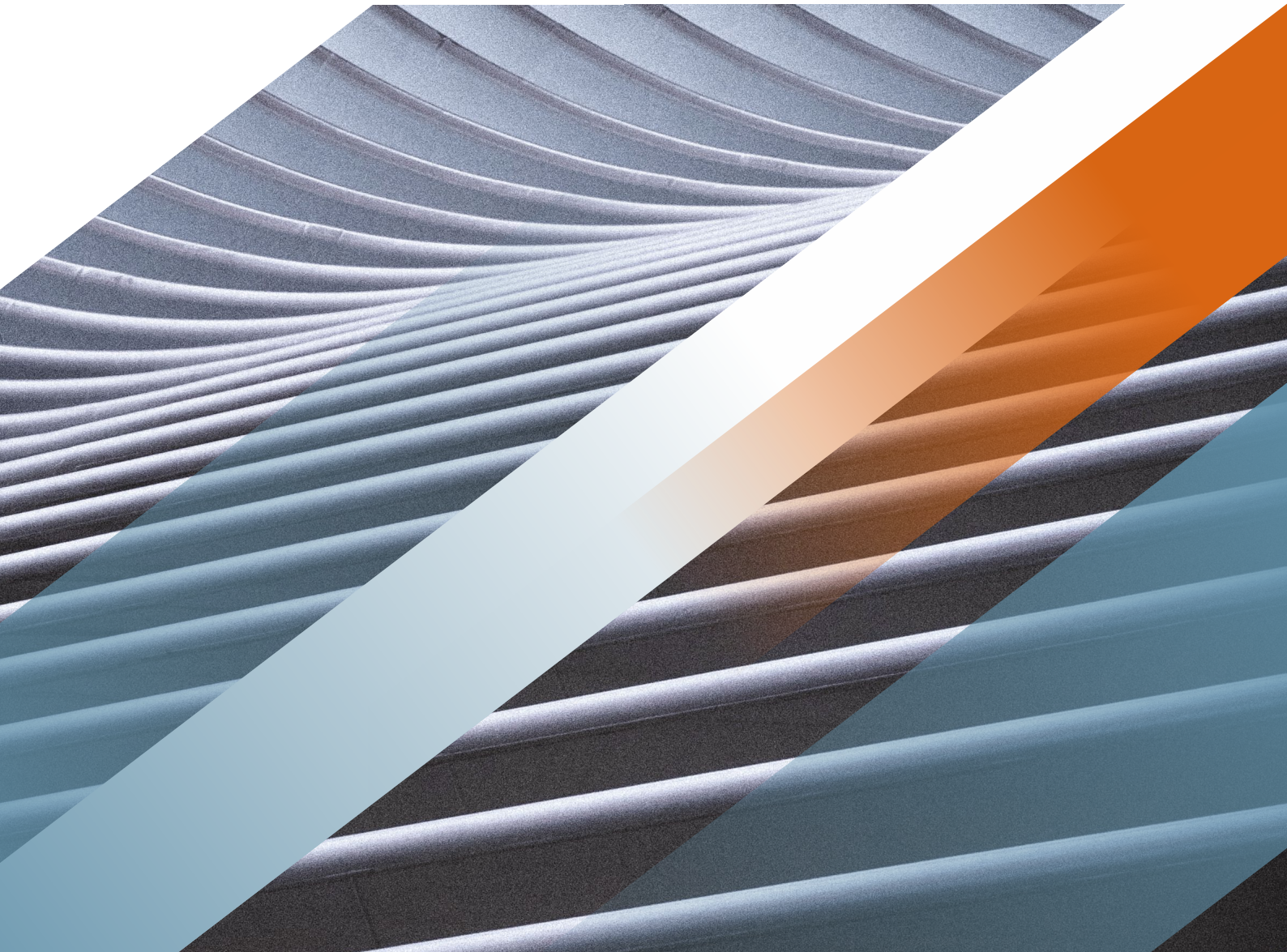
sperosens

safety through innovation

CORPORATE PROFILE



CONTENTS

SPEROSENS CORPORATE PROFILE

01 COMPANY BACKGROUND

The Sperosens group of companies is an established and respected provider of Fire Protection and Telemetry solutions to the African mining and industrial sectors.

- Sperosens was founded in 1988 and grew from the original four founding members to a total complement of some 300 employees.
- Today the company operates from eight separate facilities: the head office in Centurion with branch offices in Klerksdorp, eMalahleni (Witbank), Rustenburg, Northam, Kathu, Steelpoort and Phalaborwa. In addition, there are satellite stations at locations close to current projects or sites.
- Sperosens currently serves clients in South Africa, Botswana, Eswati (formerly Swaziland), DRC (Democratic Republic of the Congo), Ghana, Lesotho, Mozambique, Namibia, Tanzania, Zambia and Zimbabwe.
- Our engineered solutions are developed by using in-house IP and/or by integrating standard off the shelf components into system solutions.
- Sperosens is an ISO 9001:2015 certified company and the business is managed in accordance with these principles.

02 THE FUTURE OF FIRE PROTECTION

- Integrated fire philosophy
- Continuous monitoring
- System integration
- Integrated management

Single management system
Single supplier and single accountability
Total visibility and audit trails of services performed
Continuous monitoring of operational variables
Integration of fire protection systems to other systems and infrastructures
Substantial cost reduction
Full compliance

SPEROSENS
YOUR FIRE PARTNER FOR THE FUTURE

01 ENGINEERING
- Fire design
- Compliance
- Risk assessments
- Consulting

02 PRODUCTS & SOLUTIONS
- Product supply *(full range of fire products)*
- Installations
- Integrated solutions

03 COMPLEX FIRE PROJECTS
- Full EPCM provider *(EPCM – Engineering, Procurement, Construction & Management)*
- Turnkey projects
- Quality standards
- Project management

04 SUPPORT SERVICES
- Full spectrum inspections
- Maintenance services
- Service level agreements (SLAs)

05 CONTINUOUS MONITORING
- Surface and underground operations
- Telemetry
- IoT visibility 24/7
- Process management on exceptions
- Data logs, audit trails & reporting

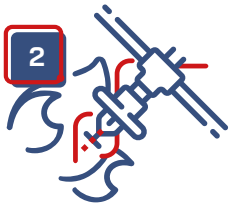
06 INTEGRATED MANAGEMENT
Verifi (technology solution)
- Full management, reporting and control
- Asset register
- Fire system status reporting
- Maintenance scheduling & planning
- Compliance reports
- Month-end reports
- Deviation reports
- Corrective action reports
- Single database
- Cloud based

03 CAPABILITIES

The company's products and services are categorised into three separate but linked groups:

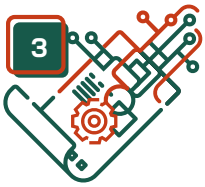
TELEMETRY & INSTRUMENTATION

Telemetry and instrumentation solutions designed to remotely monitor safety parameters and equipment performance in underground mining environments and complex industrial sites such as smelters, concentrators and processing plants.



SPECIAL RISK FIRE PROTECTION SOLUTIONS

Fire protection solutions focus on special risk categories to detect, alarm, contain and extinguish fires in underground environments and industrial installations.



DISTRIBUTED FIRE INFRASTRUCTURE MANAGEMENT

A technology toolkit designed to facilitate the management of distributed fire infrastructures in complex industrial environments.

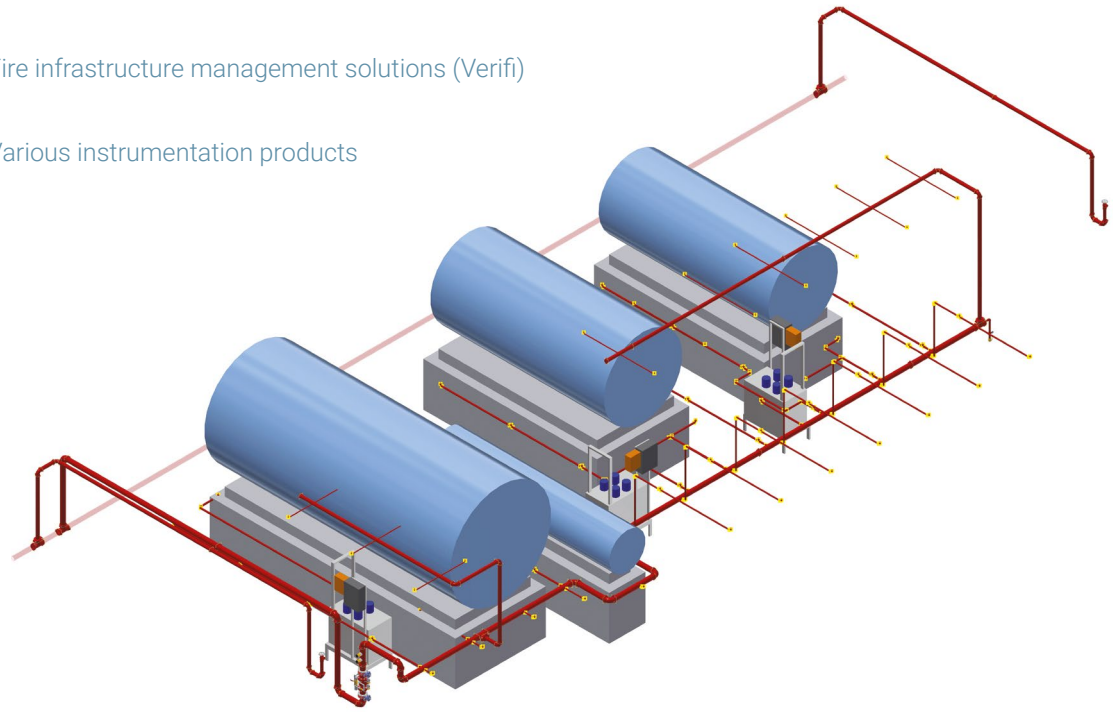
Sperosens' market leadership stems from its proven technical abilities; from system design, through project implementations, to term service level agreements.

03 CAPABILITIES

Sperosens lives by its slogan: *"Safety Through Innovation"*
Its uniquely innovative services include:

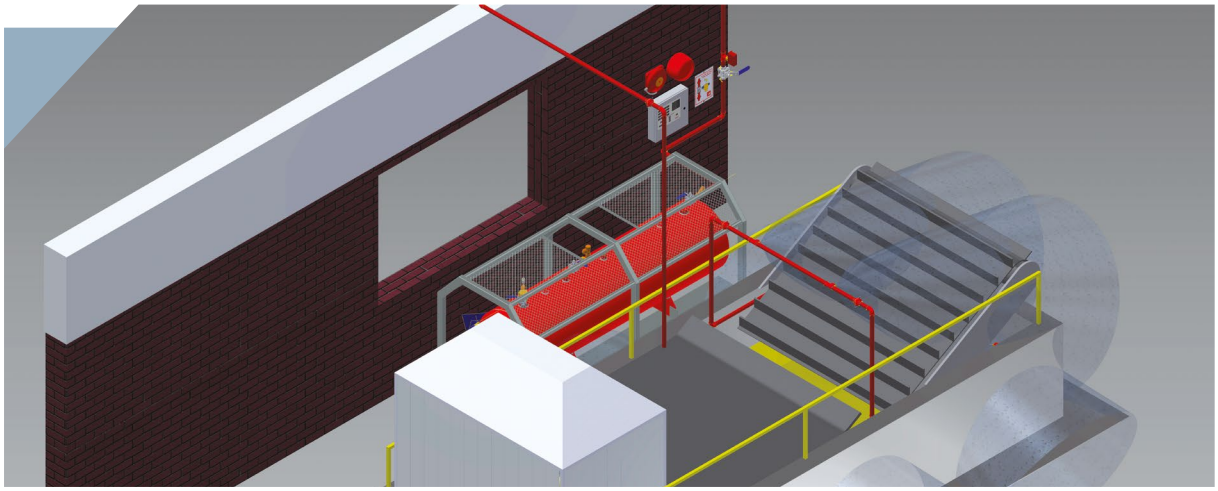
All solutions are available as Design, Supply, Installation, Management and Maintenance / Support services.

- Risk assessments
- Fire system design (compliance)
- Underground telemetry SL2010 (environmental monitoring)
- Fire detection solutions
- Fire suppression solutions
- Fire infrastructure management solutions (Verifi)
- Various instrumentation products
- Distributed Temperature Sensing (DTS)
- Distributed Acoustic Sensing (DAS)
- Conveyor belt monitoring
- EPCM Projects and installation services
- Support and maintenance services (SLA)



03 CAPABILITIES

Engineering and Design



Sperosens undertakes detailed fire protection system designs for clients in line with local and international standards to ensure system compliance (NFPA/FM/SANS). We provide clients with fire protection philosophies to guide their internal risk management processes.

Our services include fire risk assessments, gap analysis and consulting services, in order to provide clients with the best possible professional guidance on fire safety.

A team of highly dedicated Professional Engineers (Pr. Eng.), enables us to provide our clients with a full suite of solutions for all complex industrial sites.

We have a proven track record in designing complex fire protection systems for special risk applications, such as conveyor belts, diesel storage, hydraulic systems and other process plant equipment.

The design team makes use of modern computerised design and simulation tools to complement their skills and to enhance our service offering.

Supported by an expert drawing office, Sperosens provides our clients with all levels of draughting services applicable to fire protection designs.

Our engineering capability contributes substantially to our reputation as a market leader in fire protection design services, and our goal is to be a “one-stop shop” for our clients’ fire protection needs.

04 SOLUTIONS

Telemetry & Instrumentation

The SL2010 telemetry solution continuously captures, stores and displays telemetry data. Information is available by remote web access and reporting can be customised to user requirements.

The SL2010 system is the market leader in underground telemetry in South Africa. Approximately 6 300 sensors are currently being monitored on 57 sites, on a 24/7 basis.

The SL2010 telemetry system provides data communication in the mining sector and is mostly utilised as a robust environmental monitoring, fire detection and blasting monitoring solution. This feature can be used for shaft clearances.

The network is based on LonWorks® technology and is custom configurable and expandable based on specific mining layouts.

SL2010 NOTIFICATION SYSTEM SMS MESSENGER

The SL2010 SMS notification system can transmit any new alarm or maintenance event via SMS to pre-set cellphone numbers.

Applications

- Environmental monitoring such as CO, CH_4, SO_2, NO_2, H_2 and NH_3 gases, air flow, air temperature, humidity and smoke
- Fire detection
- Status monitoring
  i.e. ventilation door open/closed
- Monitoring of dam levels and pump status
- Fire system monitoring

Characteristics

- Long distance communication
- Free (dynamic) topology
- Robust communication
- Wide selection of gas sensors
- Integrates to: 4-20mA, 0-1mA
- Pre-defined blasting zones and dynamic blasting zones
- Advanced fire algorithms
- Real-time database
- System scalability

04 SOLUTIONS

Fire Detection Technologies

Selecting the most appropriate detection technology forms an essential part of any fire protection solution. Sperosens is an accredited supplier of a wide range of products and technologies.

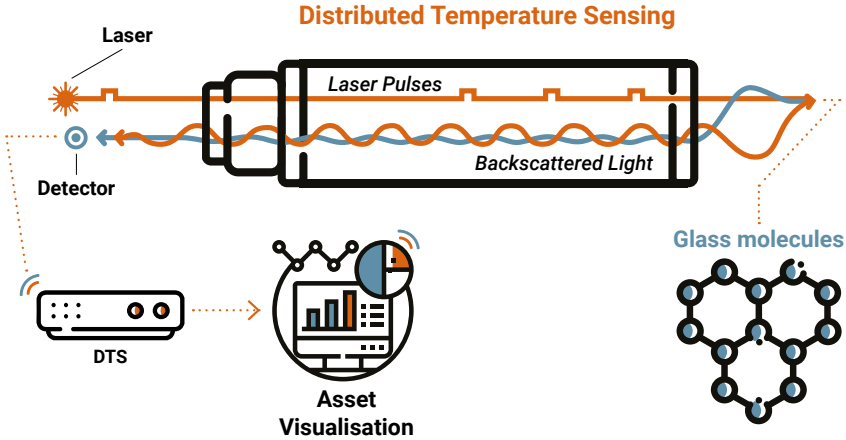
- Aspiration systems
- Gas & flame detection
- Ember detection
- Heat and flame sensitive detection tubing
- IR temperature scanning
- IR3 flame detection
- Linear heat detection - LHD
- Plummer block caps
  - Digital (switch)
  - 4-20mA (analog)
- Smoke sensors
- Temperature sensors

Heat and flame sensitive detection tubing


Plummer block Cap


IR Flame Detector


IR Temperature Scanner

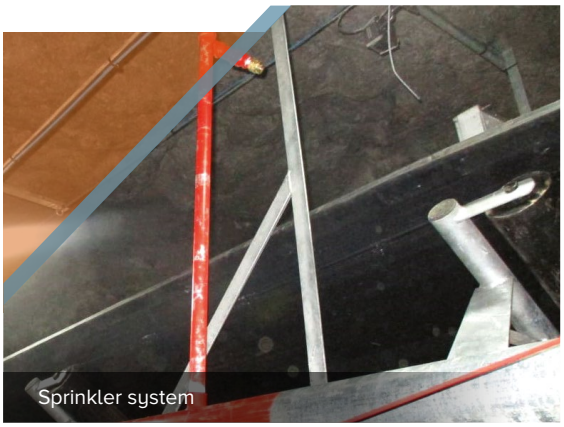


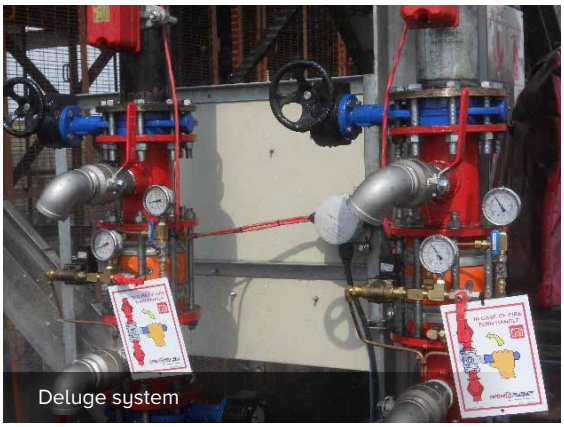
04 SOLUTIONS

Fire Suppression Technologies

A variety of suppression technologies are available and the selection of a suppression type is based on risk analysis and legislative requirements.

- CAF stand-alone systems
- Clean agent and inert gas systems
  - Total flooding
  - In-cabinet
- Fire pump stations (containerised or skid-mounted)
- Fixed mist systems
- Foam induction systems
- Water deluge spray systems
- Water sprinkler systems
- Vehicle systems


Sprinkler system


Deluge system


Foam in-line inductor


CAF stand-alone system

04 SOLUTIONS

Fire Infrastructure Management

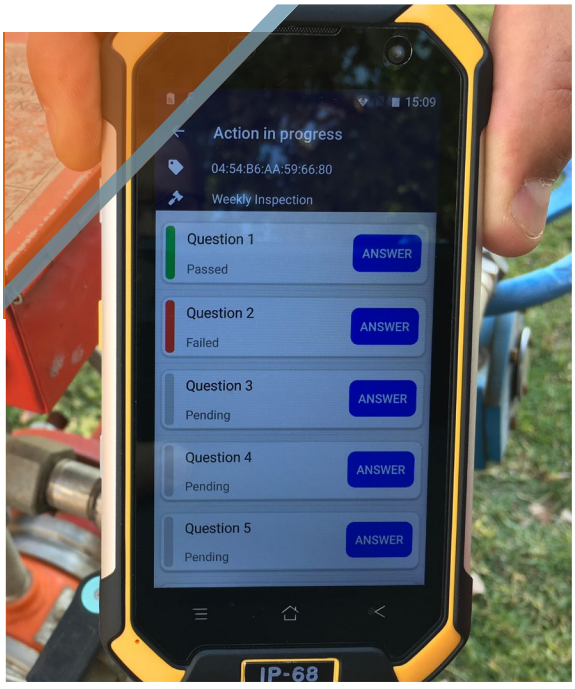
Verifi
Fire Infrastructure Management

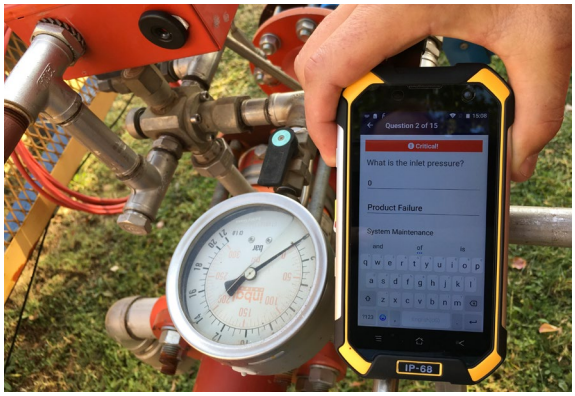
Managed fire protection infrastructure with continuous visibility and monitoring of critical variables and infrastructures.

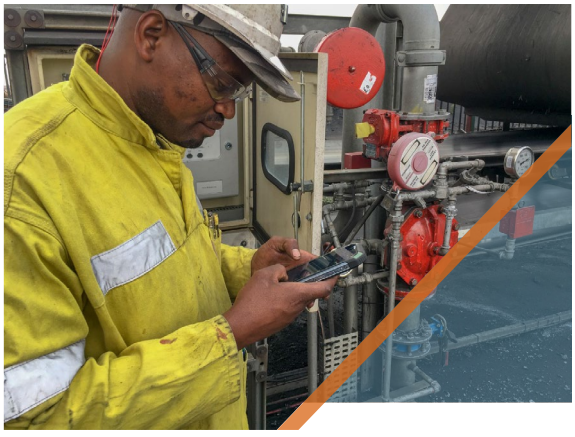
The Verifi system is a management and technology toolkit designed to facilitate the management of distributed fire infrastructures in complex industrial environments.

As a cloud-based platform it enables full visibility of all fire infrastructure related activities by integrating various technologies.

The Verifi solution addresses the customer's cost, compliance and management challenges by facilitating centralised management of the complete fire protection infrastructure.



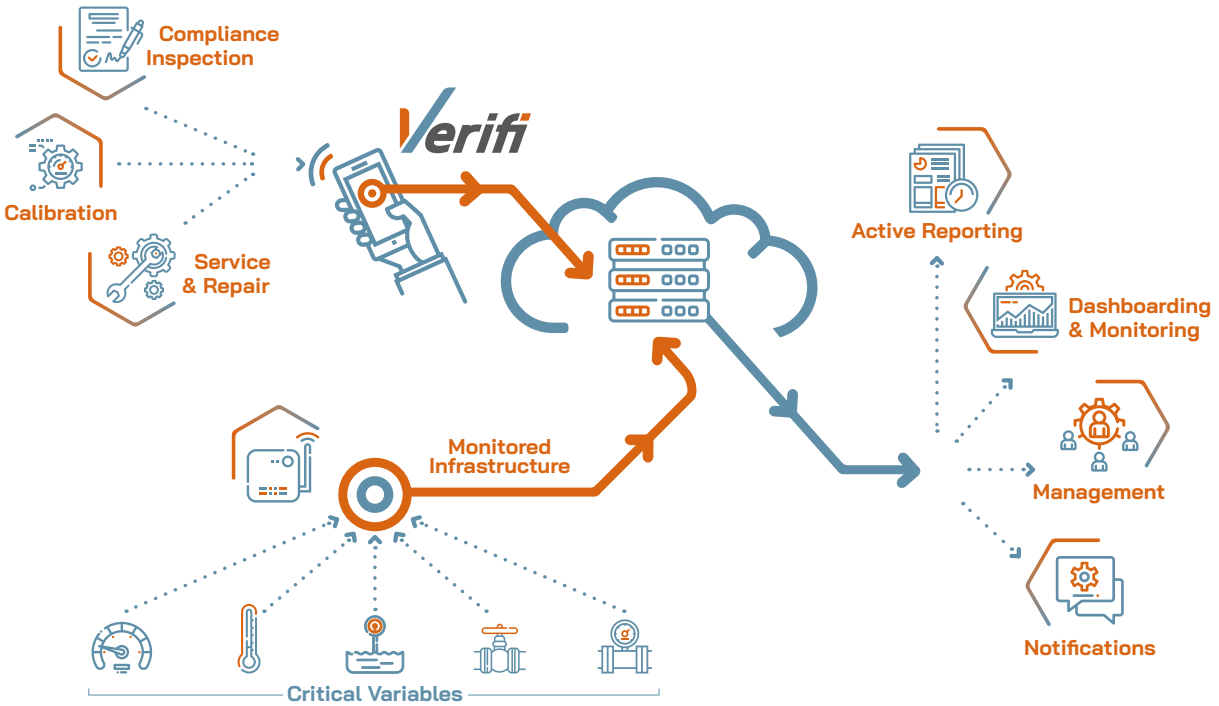




04 SOLUTIONS

Benefits

- Manage distributed fire infrastructure from one central management system.
- Full visibility of the status, cost and compliance of distributed fire protection infrastructure.
- Ability to control and measure service provider performance against a pre-defined scope.
- Link the outputs from the Verifi system to existing customer systems like control rooms, call centres, email and ERP systems.
- Guaranteed ongoing compliance with legislation and external regulations while providing the audit trails as evidence of full-time compliance.
- Substantial costs savings are possible from a single vendor agreement with focus on efficiency, integrated services, standardisation and resource optimisation.



04 SOLUTIONS

Laser 3D on-line conveyor belt monitoring

ROXON HX270 is a COMPREHENSIVE on-line conveyor belt condition monitoring and maintenance system for early belt surface damage detection to prevent catastrophic belt failures. The technology detects ALL types of belt damage.

The technology detects:

- Steel cord splice integrity
- Steel cord damage
- Early belt rips and cuts
- Extensive wear
- Cracks
- Edge damage
- Splice damage

Belt damage can cause unscheduled production stoppages, decreased belt lifetime and substantial repair work. In addition, belt failures present serious safety risks.

The Belt Condition Monitoring System scans the material and clean sides of the belt. Sensors are located in optimal positions e.g. loading chutes and unloading points, which are the most critical positions where the conveyor belt can sustain damage.

Belt damage alarms are stored on the control module and used to control the conveyor belt for maintenance. Alarms are transmitted to the HX270-UI user interface software and/or SCADA system.

If critical belt damage is detected, the control module can stop the conveyor belt immediately.

04 SOLUTIONS

Control and Instrumentation Solutions

Sperosens supply a range of monitoring products monitor and improve the safety conditions to keep your personnel, the environment and your plant safe and within legal requirements.

The solutions include:

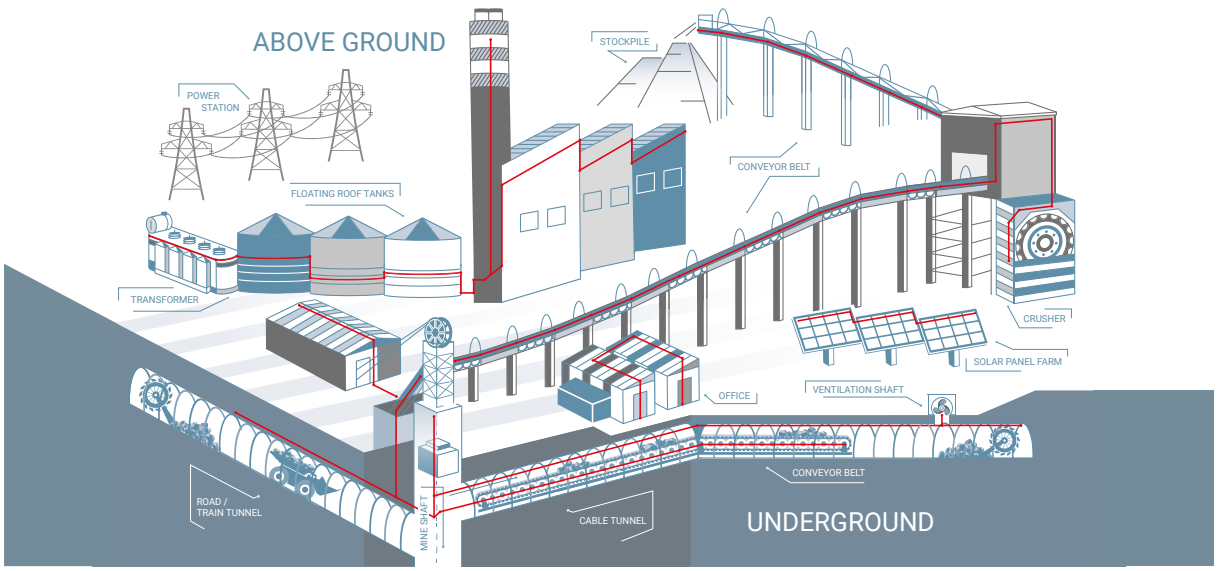
- Teledyne Fixed hazardous gas detection
- Sintrol Dust and ambient air monitoring
- Industrial Scientific Portable gas detection units
- Weber Flow switches as well as flow monitors
- iNet® Integrated solution for gas detection.

04 SOLUTIONS

Distributed Temperature Sensing (DTS) using Optical Fibre

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

- 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.
- Immune to EMI, dirt, dust and humidity
- Multiple alarm types and criteria
- Facilitates fast response to events



04 SOLUTIONS

Distributed Acoustic Sensing (DAS) using Optical Fibre

Enhanced performance and measurement capabilities for protecting your valuable assets and infrastructure.

DAS technology allows accurate measurement and location of the amplitude, frequency and phase of the incident sound field. The system provides a linear output over distance, time and acoustic intensity.

Outstanding signal-to-noise ratio leads to a world-leading measurement range of 70km.

- Power cable Monitoring
- Pipeline Leakage Detection
- Geo- & Hydrological Monitoring
- Railway Monitoring
- Perimeter Monitoring
- Intruder protection

05 ACHIEVEMENTS

6-Year Statistics

- Sperosens currently manages **97 service level agreements** across various mining and industrial clients.

- **31 420 nozzles installed** by Sperosens to protect assets such as conveyor belts, substations, generators, transformers and fuel bays.

- The SL2010 telemetry system is installed at **57 customer sites, monitoring 6 300 sensors**, to ensure safe conditions underground.

- Sperosens, in conjunction with MineRP and FlowCentric **won the MTN IoT (Internet of Things) awards** with the Digital Twin mine simulation solution.

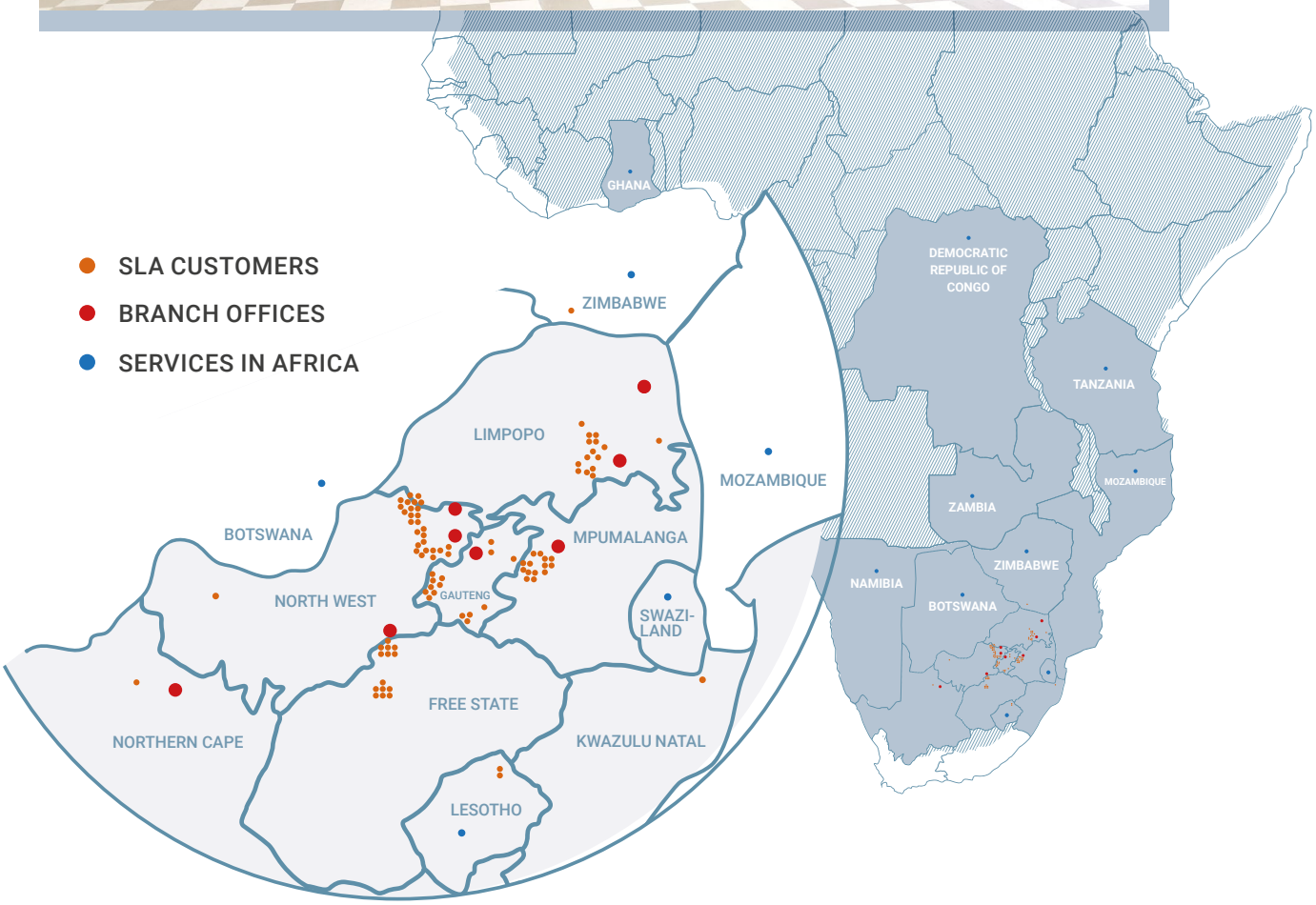
- **143 333m of fire water pipe installed** to supply water to suppression systems.

- **417 830m of communication cable installed** for measuring and monitoring underground conditions using the SL2010 telemetry system.

- **194 stand-alone CAF systems** are installed to protect equipment in harsh conditions where no fire water is available.

06 SUPPORT AND MAINTENANCE SERVICES

Full maintenance and support services throughout the life of the product or solution by way of specific service level agreements (SLAs).



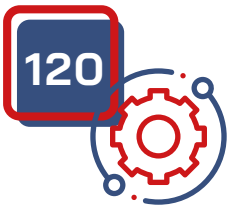
07 EMPLOYEE BREAKDOWN

The employee complement of roughly 350 includes:

ENGINEERING TEAM

INNOVATION TEAM

ARTISANS

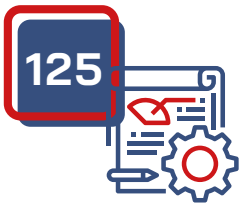


TECHNICIANS

PROJECT MANAGERS & TEAM LEADERS

ACCOUNT MANAGERS

MANUFACTURING TEAM



PROJECT & SLA

08 CERTIFICATION AND ACCREDITATION

LISTED AND APPROVED SPRINKLER INSTALLER
ASIB LISTED

FIRE PROTECTION ASSOCIATION OF SOUTHERN AFRICA

ECSA
Engineering Council of South Africa

CENTRAL SUPPLIER DATABASE FOR GOVERNMENT

cidb
Construction Industry Development Board

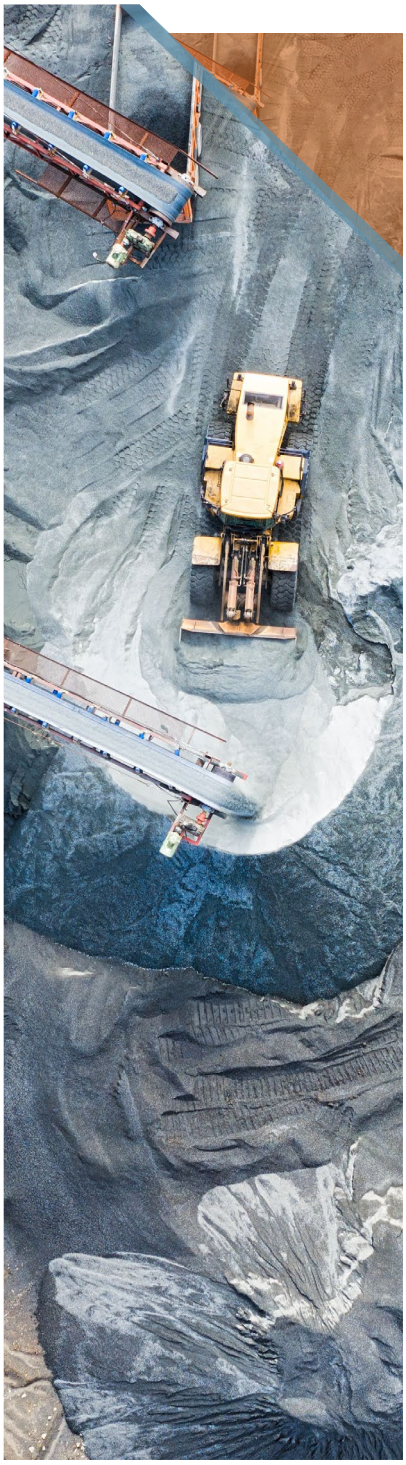
SABS APPROVED
SANS 1475-1:2010 & SANS 1475-2:2010

ISO International Organization for Standardization

FDIA

S.A.Q.C.C. FIRE

Sperosens complies with all safety regulations legally required by the various governing bodies in the industry, and the countries where work is performed.



09 OUR VALUED CUSTOMERS

ACACIA
GOLD FIELDS
KIBALI GOLD MINE
HARMONY
ANGLOGOLDASHANTI
we are one Sibanye Stillwater
RANDGOLD RESOURCES
VILLAGE MAIN REEF
SibanyeGOLD We are One
DWARSRIVIER
Mafube COAL
canyoncoal
SOUTH32
SERITI RESOURCES
samancor
GLENCORE
Eickhoff
sasol reaching new frontiers
JINDAL AFRICA
exxaro POWERING POSSIBILITY
VUNENE MINING
ANGLO COAL
AngloAmerican PLATINUM
ARM African Rainbow Minerals
Bokoni PLATINUM
NORTHAM PLATINUM LIMITED
eland platinum mine
IMPLATS Distinctly Platinum
SCI
ROYAL BAFOKENG PLATINUM MORE THAN MINING
we are one Sibanye Stillwater
LONMIN
ABB
ArcelorMittal
EIC projects
Eskom
DRA
sasol reaching new frontiers
voltampere
MINOPEX

09 OUR VALUED CUSTOMERS

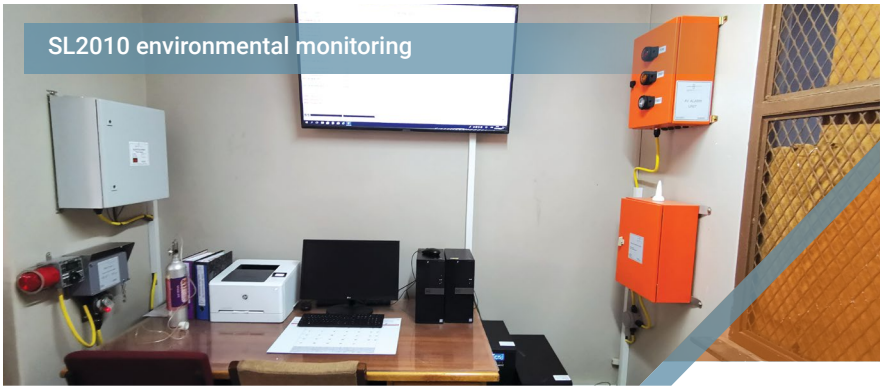
10 INSTALLATION IMAGES


Installations

In-cabinet detection and suppression

Fire suppression deluge valves


Fire suppression


SL2010 environmental monitoring

10 INSTALLATION IMAGES


Pumphouse and Ring-mains

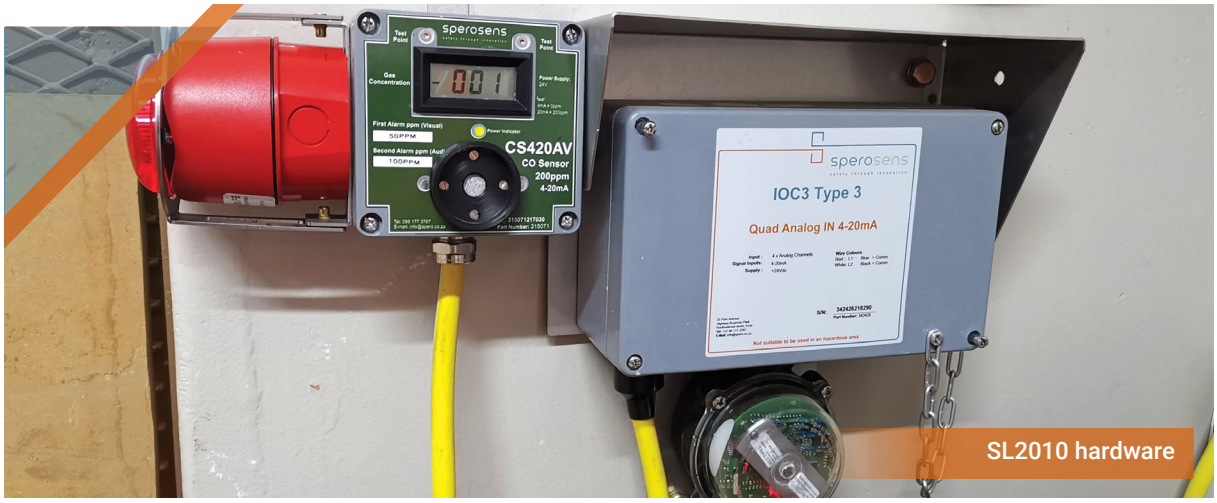

Fire water dam and pump station

Working underground

Fire protection system

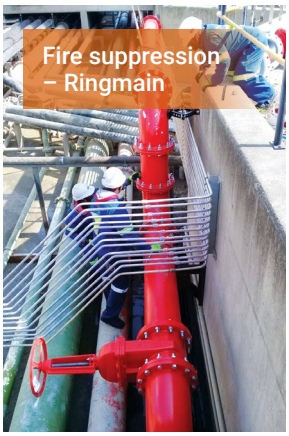

Fire detection

10 INSTALLATION IMAGES



SL2010 hardware


Off-loading CAFs


Fire suppression – Ringmain

SL2010 environmental monitoring


Conveyor belt fire protection

sperosens
safety through innovation

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