

# Company Overview



Expert System Solutions (ESS) is a radio telecommunication and telemetry/telecontrol turnkey supplier with a high-level experience and valued reputation in the mining industry, local municipalities, oil and gas industry and communications network operators. ESS, based in Pretoria, was founded in 1999 with the main purpose of providing value added equipment for the various radio trunking operators in South Africa.

ESS provides the perfect solution to the growing demand for wireless availability and efficiency. ESS products have been designed with emphasis on ease of operation, ease of maintenance and efficient way of handling data communications (low bandwidth utilisation).

ESS consists of three business units:

- Services (Communication consultant and system integrators)
- Products (TETRA, Telemetry/Telecontrol, OPC Server, SCADA)
- Partner Products (TETRA, Cell extenders, Crypto Phones, TETRA Modems, DMR Modems, Applications)

ESS know-how for radio networks has been excellent and engineered 3 out of the 4 national MPT1327 radio trunking networks in South Africa and five TETRA networks in South Africa: Sasol Secunda, Sasol in Sasolburg, Anglo American Sishen Mine, South African Police Service Eastern Cape and NATREF.

ESS has an outstanding reputation with the supply and integration of telemetry/telecontrol solutions with government departments, various mines and municipalities.

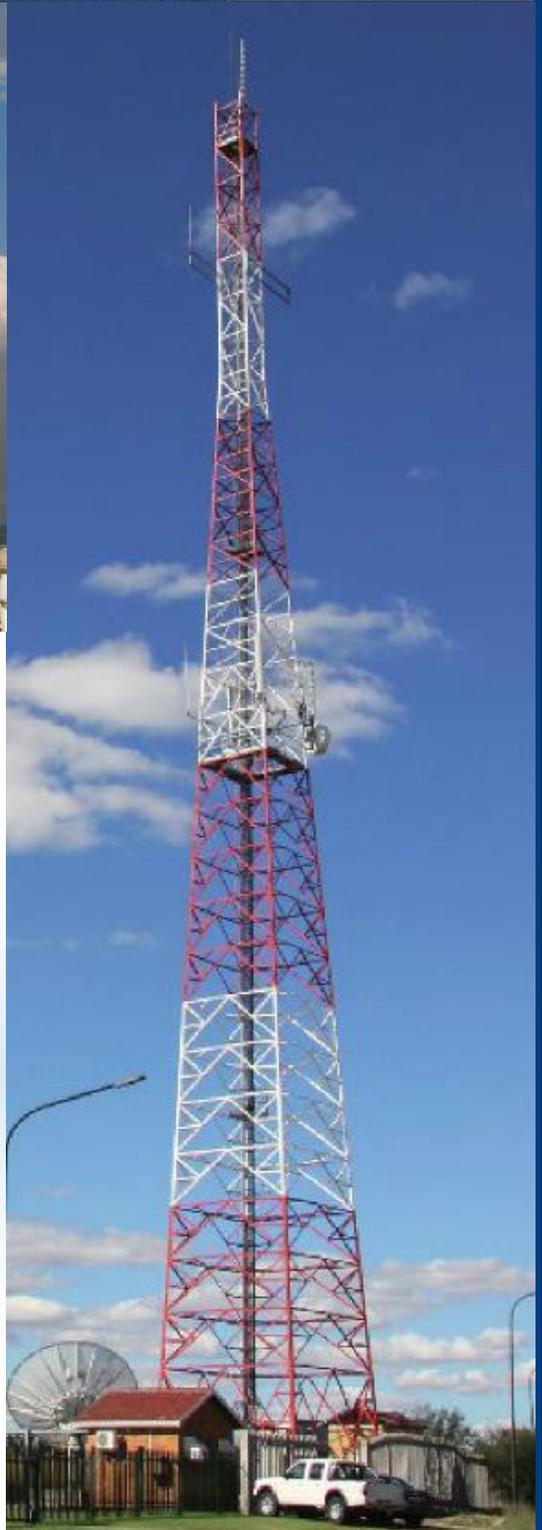
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ESS provides Private Mobile Radio (PMR) network consulting services and system engineering for the following disciplines:

- Network system engineering
- Network capacity and loading studies (Erlang)
- RF (Propagation studies, intermodulation, etc.)
- High Site acquisition
- Project Management
- Supplier's recommendation and integration
- Network training and assistance
- Network maintenance
- Assistance with procurement for Communication Networks
- Assistance and recommendations for value added products
- Assistance with frequency, tenders and business-plan
- As-build Documentation
- Training
- Network Management

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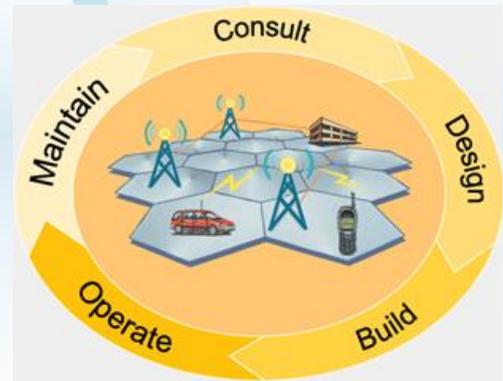
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ESS provides turnkey wireless telemetry/telecontrol and SCADA solutions with the following disciplines:

- Network design and planning
- System engineering
- Capacity planning
- Project Management
- Supplier's recommendation and integration
- Network training and assistance
- Network maintenance
- Assistance with procurement
- Assistance for value added products
- Network optimisation
- Assistance with frequency, tenders and business-plan



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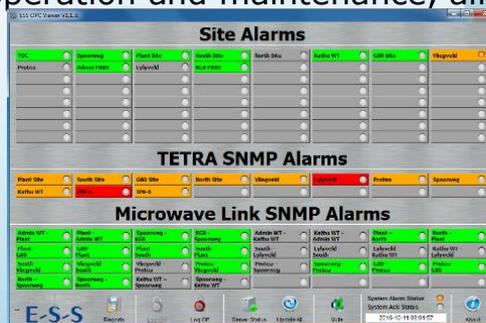
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ESS Telemetry/Telecontrol products are designed and manufactured by ESS, in partnership with strategic alliances and established sub-contractors. Product design is done with emphasis on the South African conditions such as lightning, ease of operation and maintenance, all low data bandwidth utilisation.



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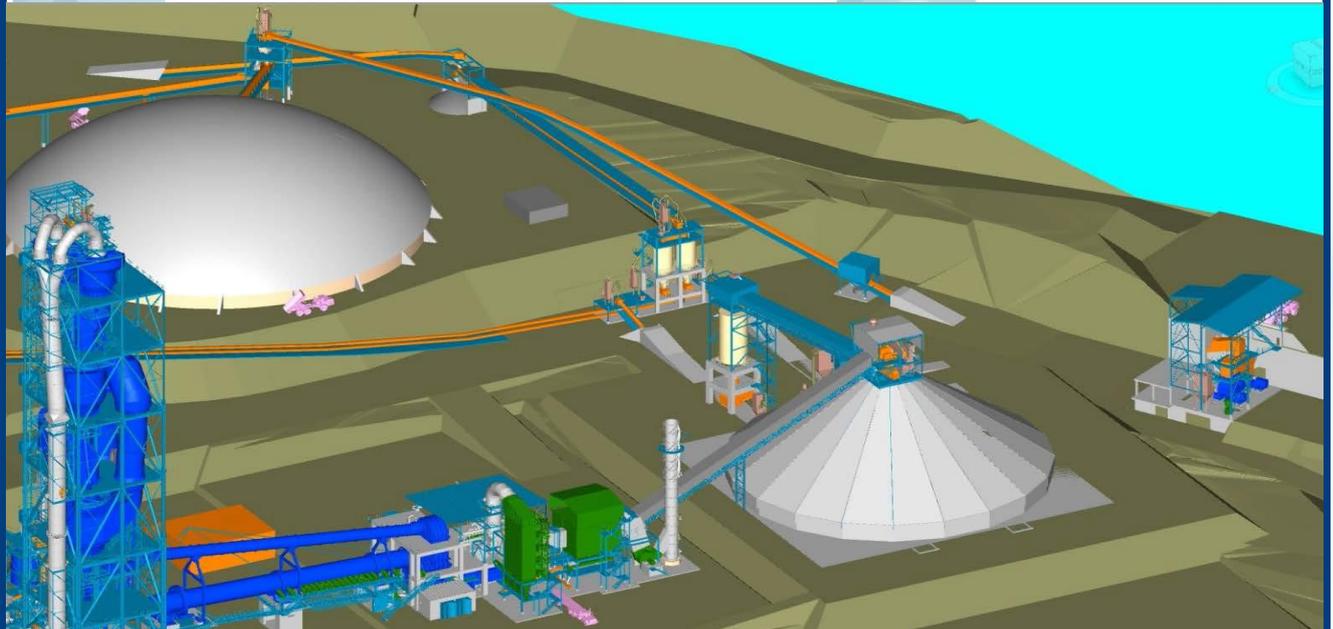
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## Guaranteed Lightning Avoidance Solutions.

ESS will provide design, install and commissioning even for complex designs.



- Lightning Avoidance guarantees the safety of both people and electronic equipment and minimises equipment downtime and operational downtime.
- Provides Electromagnetic Shield and minimises the effects of electromagnetic pulses (EMP) and improves RF characteristics (RF noise)
- Lightning Avoidance will save money for CAPEX and OPEX



## Main ESS Project References:

- Sasol: Telemetry/Telecontrol based on MPT1327 radio trunking since 1999
- Sasol Secunda: Design and supply of turnkey TETRA network since 2007
- SAPS Eastern Cape: System Engineering for the TETRA Network 2008
- Exxaro: Supply of turnkey Telemetry/Telecontrol system for the entire Grootegeluk Mine including Eskom and Municipality RTU's, since 2008
- SAPS Eastern Cape: Supply and commissioning of TETRA Turnkey High Site monitoring equipment comprising 210 sites, 3 SCADA servers and 40 SCADA clients, 2009 - 2013
- Sasol Sasolburg: Design and integration of TETRA network, since 2011
- Sasol: Supply of various Telemetry/Telecontrol systems based on the ESS TETRA RTU, since 2012
- Ekurhuleni Municipality: Supply of Site monitoring & Control system 2013
- First delivery of ESS-TETRA-RTU outside Africa, since 2013
- TETRA System Engineering & Consultant for Anglo American, since 2014
- TETRA system for NATREF with integration to Sasol, since 2018