CASE STUDY

Ensuring Safety and Reliability with the 630kVA 11000/1000V 3Ph 50Hz Medium Voltage Underground Miniature Substation

ArmCoil

Delivering Power Solutions through Transformers & Substations

PREPARED BY CHANTEL MIDDLEDITCH

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INTRODUCTION:

The 630kVA 11000/1000V 3Ph 50Hz Medium Voltage Underground Miniature Substation stands as a pioneering solution for the robust and safe operation of electrical equipment in the demanding underground mining environment. Equipped with cutting-edge safety features such as the Neutral Earthing Resistor Professional Monitoring Panel (NERPRO) and the Battery Trip Unit (BTU), this system exemplifies the utmost commitment to human safety and the protection of critical equipment.

By integrating advanced monitoring and tripping mechanisms, this substation sets a new benchmark for safety standards in underground mining operations.

THE BTU'S CRUCIAL ROLE IN ENSURING RAPID RESPONSE TO FAULTS:

The Battery Trip Unit (BTU) within the 630kVA substation plays a pivotal role in enabling swift responses to various faults that may arise during mining operations.

By facilitating the instant activation of the trip coil in the Ring Main Unit (RMU), the BTU ensures immediate isolation and grounding of the incoming power supply in the event of an Earth Fault (E/F), abnormal temperature, excessive pressure, or a manual Emergency Stop (E/Stop). This rapid response mechanism effectively safeguards all connected equipment, from the transformer to low voltage components, preventing potential damage and ensuring the safety of personnel operating in the vicinity.

THE NERPRO PANEL'S ADVANCED MONITORING CAPABILITIES:

The Neutral Earthing Resistor Professional Monitoring Panel (NERPRO) installed within the 630kVA substation represents a significant leap forward in safety monitoring technology.

Equipped with a user-friendly touch screen interface, the NERPRO panel allows for the integration of up to six inputs from various protection devices, enhancing the overall protective capacity of the system.

Its comprehensive harmonic filter protection ensures continuous monitoring and measurement of the Earth Fault (E/F) current, as well as the integrity of the Neutral Earthing Resistor (NER). This comprehensive monitoring capability surpasses the standard NERM systems, which typically only check for Earth Faults, thus significantly enhancing the overall safety and reliability of the substation.

ROBUST DESIGN FOR CHALLENGING MINING ENVIRONMENTS:

The robust design of the 630kVA substation is tailored to withstand the challenging conditions prevalent in underground mining operations. Its drag and lift type skid base, reinforced by a high-level mechanical design, ensures that the substation can withstand the most extreme conditions and operating environments. The specialized design further allows for the replacement of individual sectional compartments, providing a cost-effective and efficient solution for maintenance and repair, should the need arise. Moreover, the integration of mining-specific outdoor LED area lights enhances visibility in the otherwise dark and hazardous underground environment, further underlining the commitment to safety and operational excellence.

CONCLUSION:

The 630kVA 11000/1000V 3Ph 50Hz Medium Voltage Underground Miniature Substation, with its state-of-the-art safety features, advanced monitoring capabilities, and robust design, represents a remarkable advancement in ensuring the safety and reliability of electrical systems in demanding mining environments. By combining cutting-edge technology with a strong emphasis on safety and durability, this substation serves as a crucial pillar in the protection of both human life and valuable equipment, underscoring its indispensable role in modern underground mining operations.

THANK YOU!

Let us guide you towards your own success story. Reach out to us today and embark on a path towards exceptional results.

CONTACT

SALES@ARMCOIL.CO.ZA
+27 11 763 2351
HTTPS://LINKTR.EE/ARMCOIL