



Solutions for Low Voltage Tripping Issue on Variable Frequency Drives in Power Plant Powder Feeders

Variable Frequency Drives (VFDs) play a critical role in power plant operations, particularly in powder feeders where precise control is essential. However, encountering low voltage tripping issues on VFDs can disrupt production and lead to downtime.

1.Voltage Regulation:

Implementation of Voltage Stabilizers:

Installing voltage stabilizers or regulators can help maintain a consistent voltage supply to the variable frequency drive. These devices ensure that voltage fluctuations within the power plant do not adversely affect the operation of the VFD, preventing low voltage tripping incidents.

Capacitor Banks for Power Factor Correction:

Capacitor banks can be employed to improve the power factor and stabilize voltage levels in the power distribution system. By enhancing the reactive power supply, capacitor banks mitigate voltage drops and fluctuations, reducing the likelihood of low voltage tripping on VFDs.

2.Power Quality Enhancement:



Harmonic Filters Installation:

Harmonic filters can be installed to mitigate voltage distortion and harmonic disturbances in the power supply. These filters reduce the impact of non-linear loads on the system, ensuring cleaner and more stable power delivery to the VFDs, thus minimizing the risk of low voltage tripping.

Active Power Line Conditioners:

Active power line conditioners actively regulate voltage and correct power factor in real-time. By compensating for voltage sags and swells, these devices ensure a stable and high-quality power supply to the variable frequency drives, preventing disruptions due to low voltage conditions.

3.VFD Parameter Optimization:

Voltage Ride-Through Settings Adjustment:

Adjusting the voltage ride-through settings on the VFDs can help mitigate the impact of short-term voltage dips. By increasing the tolerance threshold for voltage fluctuations, VFDs can continue operating during transient low voltage events without tripping, ensuring uninterrupted powder feeder operation.

Voltage Monitoring and Alarming:



Implementing voltage monitoring systems with real-time alarming capabilities allows operators to proactively identify and address low voltage conditions. By receiving immediate alerts when voltage levels drop below acceptable thresholds, operators can take prompt action to prevent VFD tripping and minimize downtime.

4.External Voltage Boosters:

Installation of Voltage Boosting Devices:

External voltage boosters or transformers can be installed to increase the voltage level supplied to the variable frequency drives. Moreover, these devices elevate the incoming voltage to ensure that it remains within the optimal operating range of the VFDs, effectively preventing low voltage tripping incidents.

Automatic Voltage Regulation Systems:

Automatic voltage regulation systems continuously monitor the incoming voltage and automatically adjust it to maintain optimal levels for VFD operation. By providing a stable and regulated voltage supply, these systems eliminate the risk of low voltage tripping and ensure reliable performance of the powder feeders.

Encountering low voltage tripping issues on variable frequency drives in power plant powder feeders can be disruptive and costly. However, through the implementation of a combination of voltage regulation measures and power quality enhancement techniques, operators can



effectively address these problems. By optimizing VFD parameters and employing external voltage boosting solutions, they ensure smooth operation. Proactively managing voltage fluctuations and maintaining a stable power supply to the VFDs is crucial. Power plants can thereby optimize productivity, minimize downtime, and enhance operational efficiency.