



Provide a complete list of interlocks required for a gas turbine in a power plant.



Interlocks are essential safety measures designed to protect equipment and personnel in a power plant. The exact list of interlocks required for a gas turbine in a power plant may vary depending on the specific turbine design, model, and site requirements. However, there are some common interlocks that can be found in most gas turbine installations:

1. Flame Failure Detection: If the combustion flame is not detected, the fuel supply is cut off to avoid unburned fuel accumulation and potential explosion hazards.
2. High Vibration Trip: If excessive vibration is detected, the turbine is shut down to prevent mechanical damage.
3. Low Lubrication Oil Pressure: If the lubrication oil pressure falls below a specified limit, the turbine is shut down to prevent bearing failure and other damage.
4. High Bearing Temperature: If bearing temperatures exceed specified limits, the turbine is shut down to avoid potential equipment damage.
5. High Exhaust Temperature: If exhaust temperature exceeds the specified limits, the turbine is shut down to prevent potential hot-end damage and loss of performance.
6. Over-speed Protection: If the turbine rotational speed exceeds the specified limit, the turbine is shut down to prevent catastrophic damage.
7. High Compressor Discharge Pressure: If the compressor discharge pressure exceeds specified limits, the turbine is shut down to prevent potential mechanical failure.
8. Low Starting Air Pressure: If the starting air pressure is too low, the turbine startup sequence is halted to ensure safe and efficient operation.
9. High Air Inlet Filter Differential Pressure: If the air filter pressure drop exceeds specified limits, the turbine is shut down to prevent damage from insufficient airflow.
10. Loss of Generator Excitation: If the generator loses its excitation, the turbine is disconnected from the grid to protect the generator and power system from electrical disturbances.
11. Reverse Power Protection: If the generator starts to consume power instead of generating it, the turbine is disconnected from the grid to protect the generator and power system from electrical disturbances.
12. Loss of Cooling Water: If the cooling water supply is lost or insufficient, the turbine is shut down to prevent overheating and damage.
13. Emergency Shutdown (ESD) System: A manual or automatic shutdown system that can be activated in case of emergency situations or significant safety issues.

Please note that this list is not exhaustive, and additional interlocks may be required based on the specific gas turbine model, site conditions, and regulatory requirements. Always consult the manufacturer's documentation and local regulations for a complete list of interlocks applicable to your installation.