



Why does the ATS46 or ATS48 unit get a phase fault PHF when try to start?

Possible Causes & Solutions:

- Mains supply failure greater than 500ms when run command is present. (verify that line voltage is sufficient, stable and present on L1-L2-L3 terminals. If an isolation contactor is used, it must close within 200ms of a run command)
 - Motor current draw less than 10% of the nominal starter rating. (verify that load is present and motor is pulling sufficient current because current draw must be more than 10% of the controller rating while running without a shorting contactor)
 - SCR failure (suspect this to be case if fault occurs immediately upon start - can verify SCRs by measuring from L1 to T1, L2 to T2, L3 to T3 with the control head totally removed from unit on ATS46 - when make this measurement should see at least 50k ohms or if less then suspect have a bad SCR in that phase)
 - Power factor greater than 95% lagging
 - If the fault is detected after completion of the acceleration ramp, ensure that the proper connection of the shorting contactor if used. The output of the the shorting contactor must be connected to terminals A2-B2-C2, and must close within 200 msec.
 - Can occur if shorting contactor does not drop out within 500ms of stop (Look at associated relay which may be dropping it out due to noise)
 - Can try to confirm if the shorting contactor is the issue by removing contactor out of the system by disconnecting and see if the soft starter will run without getting the PHF fault.
 - Check for open phases including:
 - Blown Fuses
 - Open or loose power connections
 - SCR failure - not resettable via control logic
 - To test the SCRs, remove power. Remove the main control board. Check Ohms from input to output for each phase in both directions. All Ohms readings should exceed 50 k Ohms.
 - Check connections to measurement board to confirm secure and clean if blackened
 - Verify the motor and the output wiring to confirm if good
 - If occurs as soon as soon as shorting contactor pulls in verify IR & ILT settings --> if IR is set too high when shorting contactor is pulled in it will be looking for a set current, if that current is to low the unit will trip on phase failure.
 - With the ATS46 if suspect external and load issue can test with smaller motor or same motor with SST (in level 3 for ATS46 or drC menu for ATS48) ON which is test on low power motor or maintenance mode -- If current is the issue then with this on the unit should get up to speed and run.
 - Verify that there are no devices on line or load side such as contactors or overloads that may be open.
 - If the motor can be run across the line, measure current on each phase. They should be equal. An imbalance could indicate a bad motor.
- *****Additionally on ATS46 or ATS48 verify wiring to shorting contactor. It may have wires reversed on the contactor input as compared to the contactor output. Terminal A1 should go through shorting contactor to terminal A2, Terminal B1 should go through shorting contactor to terminal B2 and terminal C1 should go through shorting contactor to terminal C2.

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