



Backup Power Fault Code Quick Reference

Common fault codes for diesel generators, HMI controllers & ATS units | 5kW – 3000kW

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How to use this guide: Find the fault code shown on your generator's control panel or HMI screen. Match it to the code below to identify the fault type, most likely cause, and recommended action. Codes are organized by system: Engine, Generator/Alternator, ATS, and Fuel System. **Always refer to the manufacturer's official manual for your specific controller model.**

- 🔧 Engine Faults
- ⚡ Generator / Alternator
- 🔑 ATS Faults
- 🛢 Fuel System
- 🛢 Oil / Coolant
- 🔌 Electrical

🔧 ENGINE FAULT CODES

Common engine protection faults — typical codes: E-01 to E-99 or F01–Fxx depending on controller brand (Deep Sea, ComAp, Datakom)

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
E-01	Engine Overspeed	Governor failure, sudden load loss, fuel runaway	Emergency stop immediately. Check governor linkage and fuel rack. Inspect for mechanical seizure.	HIGH
E-02	Engine Underspeed	Heavy overload, fuel starvation, air filter blockage	Reduce load. Check fuel supply, air filter, and fuel pump. Measure compression.	HIGH
E-03	Low Oil Pressure	Low oil level, worn oil pump, diluted oil, faulty sensor	Stop engine immediately. Check oil level. Do NOT restart until resolved. Risk of severe engine damage.	HIGH
E-04	High Coolant Temperature	Low coolant, faulty thermostat, blocked radiator, water pump failure	Reduce load or stop engine. Check coolant level and radiator. Inspect water pump belt.	HIGH
E-05	Coolant Low Level	Coolant leak, evaporation, cracked head gasket	Stop engine. Top up coolant. Inspect for leaks. Check oil for coolant contamination (milky oil = head gasket).	HIGH
E-06	Start Failure	Dead battery, faulty starter motor, poor compression, no fuel	Check battery voltage (24V). Test starter. Check compression. Verify fuel flow and prime if necessary.	MED
E-07	Speed Signal Loss	Faulty magnetic speed sensor, loose wiring, damaged gear ring	Check speed sensor gap (typically 0.5–1.5mm). Clean sensor. Check wiring harness. Measure sensor resistance.	MED
E-08	High Oil Temperature	Prolonged high-load operation, low oil level, oil cooler blocked	Reduce load. Check oil level and cooler. Inspect oil cooler fins for blockage.	MED
E-09	ECU Communication Fault	CAN bus wiring issue, ECU module failure	Check CAN bus wiring and termination resistors. Try power reset. Consult engine dealer for ECU diagnostics.	LOW
E-10	Maintenance Due	Scheduled service interval reached (run hours)	Perform scheduled maintenance per service manual. Reset maintenance timer after service.	INFO

⚡ GENERATOR & ALTERNATOR FAULTS

Generator-side electrical faults — voltage, frequency, and synchronization issues

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
G-01	Generator Overvoltage	AVR failure, loss of load, incorrect voltage regulator setting	Disconnect load. Check AVR connections. Measure excitation voltage. Replace AVR if faulty.	HIGH
G-02	Generator Undervoltage	AVR failure, loss of excitation, overload, poor power factor	Check AVR. Verify excitation field winding resistance. Test under no-load conditions.	HIGH
G-03	Overfrequency	Governor failure, sudden major load disconnection	Check governor. Verify fuel rack movement. Measure engine RPM. Check load conditions.	HIGH
G-04	Underfrequency	Heavy overload, mechanical binding, fuel supply restriction	Reduce load. Check fuel system. Verify engine mechanical condition. Measure cylinder compression.	HIGH
G-05	Reverse Power	Generator synchronised incorrectly, acting as motor instead of generator	Open breaker immediately. Check synchronization settings. Verify CT polarity and direction.	MED
G-06	Loss of Excitation	AVR failure, open exciter field winding, brush wear	Check AVR output. Inspect brushes and slip rings. Measure field winding resistance. Check exciter diodes.	MED
G-07	Harmonic Distortion High	Non-linear loads (VFDs, UPS), generator undersized for load type	Measure THD with power quality meter. Add harmonic filtering or increase generator capacity.	MED
G-08	Phase Sequence Error	Generator wired incorrectly, phase rotation mismatch	Check phase sequence at output terminals. Swap two phases to correct rotation.	LOW
G-09	Voltage Imbalance	Unequal loading across phases, stator winding issue	Check load distribution across phases. Measure voltage per phase. Megger test stator if imbalance persists.	LOW

 ATS (AUTOMATIC TRANSFER SWITCH) FAULTS

Common ATS controller faults and transfer problems

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
A-01	ATS Failure to Transfer	Mechanical jam, actuator failure, control circuit fault	Manual transfer test. Check actuator motor and mechanical movement. Verify control voltage to actuator.	HIGH
A-02	ATS No-Go Signal	Generator output not stable, voltage/frequency out of tolerance	Wait for generator to stabilize (10–30 sec). If persistent, check generator output voltage and frequency.	HIGH
A-03	ATS Controller Communication Error	CAN/RS485 communication loss, wiring issue, controller failure	Check communication wiring and connectors. Verify termination resistor. Power cycle controller.	MED
A-04	Plant Exerciser Failed	ATS exercise cycle failed to complete, load test unsuccessful	Run manual exercise test. Check engine start and run. Verify fuel supply and battery condition.	MED
A-05	ATS Test Mode Active	Manual test switch left in test position	Return test/normal switch to normal position. Verify normal operation resumes.	INFO

 FUEL SYSTEM FAULTS

Fuel delivery, quality, and supply issues

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
F-01	Fuel Low Level	Tank nearly empty, fuel consumption higher than expected	Top up fuel tank immediately. Investigate consumption rate. Check for leaks.	HIGH

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
F-02	Fuel Quality Fault	Water or contamination in fuel, microbial growth in tank	Drain fuel filter bowl. Check fuel sample. If contaminated, drain and flush tank. Use fuel stabilizer going forward.	HIGH
F-03	Fuel Line Air Lock	Air in fuel lines after service or long shutdown	Bleed fuel lines per engine manual. Prime fuel system. Check all fittings for air leaks.	MED
F-04	Fuel Injector Fault	Individual injector failure, timing error, nozzle blockage	Perform cylinder cut-out test. Check injector timing. Replace faulty injector(s). Seek dealer support for injection pump.	MED
F-05	Fuel Consumption High	Partial fuel leak, injector wear, operating above optimal load	Check for external fuel leaks. Review load profile. Measure fuel consumption against rated output.	LOW

 OIL & COOLANT FAULTS

Lubrication and cooling system faults

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
0-01	Oil Pressure Low — Shutdown	Critical oil level loss, major oil leak, catastrophic oil pump failure	Emergency stop. Do NOT restart. Check oil level and inspect for major leak. Risk of total engine seizure.	HIGH
0-02	Oil Dilution (Coolant in Oil)	Head gasket failure, cracked block, heat exchanger leak	Stop immediately. Do not run engine. Check oil for milky discoloration. Pressure test cooling system. Seek workshop inspection.	HIGH
0-03	Oil Temperature High	Prolonged high-load running, insufficient oil cooling, cold oil in high load condition	Reduce load. Allow engine to cool. Check oil cooler. Verify oil viscosity grade matches ambient temperature.	MED
0-04	Coolant Temperature High Warning	Early stage overheating, cooling system approaching limit	Reduce load immediately. Monitor temperature. If warning persists, reduce further or stop and investigate.	MED

 ELECTRICAL & BATTERY FAULTS

Starting system, battery, and charging faults

CODE	FAULT NAME	LIKELY CAUSE	RECOMMENDED ACTION	LEVEL
B-01	Battery Voltage Low (Cranking)	Battery too discharged to crank engine, battery aged, alternator not charging	Measure battery voltage under load (cranking voltage). If below 18V on 24V system, charge or replace battery. Check alternator output.	HIGH
B-02	Battery Charging Failure	Alternator not charging, voltage regulator fault, belt slippage	Measure alternator output voltage (should be 27–29V on 24V system). Check belt tension. Test alternator with multimeter.	MED
B-03	Starter Motor Fault	Starter solenoid failure, pinion jam, solenoid stuck	Tap starter lightly with rubber hammer. Check solenoid and magnetic switch. If solenoid clicks but pinion doesn't engage, gear train issue.	MED
B-04	Ground Fault Detected	Insulation failure, live wire touching chassis, moisture ingress	Isolate generator from load. Megger test all circuits. Inspect wiring for damage and moisture.	LOW



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This reference guide covers the most common fault codes for industrial diesel generator sets (5kW–3000kW). Actual codes vary by controller brand (Deep Sea Electronics DSE, ComAp, Datakom, Smartgen, etc.) and engine brand (Cummins, Perkins, Weichai, Volvo, etc.). Always refer to your equipment manufacturer's official service manual for model-specific fault code definitions.
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