

Troubleshooting based on the Optidrive fault codes plus general fault diagnosis

***Introduction: This document is designed to be used in the
fault diagnosis of the Optidrive product range***

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1. Fault code: **EE-F** on power up

Product range: ODE

Principle: This fault is triggered by the EEPROM not saving a new parameter setup after power down.

Action/tests:

- 1) Reset drive to factory default, please refer to drive product manual for further information.
- 2) For testing purposes, change parameter P-01 to a new value of 75.
- 3) Power down drive and wait 2 minutes to ensure DC Bus capacitors are fully discharged.
- 4) Power up drive and check if drive has saved the new value in P-01. If present drive OK.
- 5) If the value has returned to default value the drive has an EEPROM fault.
- 6) Complete service request form detailing the fault and forward to Invertek's Service department.

2. Fault code: **O-I** on Power up or enable

Product range: All

Principle: This fault is triggered when the output current is above 200% of the drive rated current.

Action/tests:

- 1) Remove all motor connections from drive.
- 2) Safe all parameters you may require.
- 3) Reset drive to factory default, please refer to drive product manual for further information.
- 4) Enable drive with no motor connector. Has fault been removed?
- 5) If yes check motor and cables for error i.e. incorrect wiring, excessive cable length (refer to drive product manual for motor cable lengths), phase to phase shorts or phase to earth shorts.
- 6) If the above checks are OK carry out resistant checks between U to V, V to W & V to W output phase for short circuits.
- 7) If fault persists after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

3. Fault code: **I_o-ErrP** during operation

Product range: All

Principle: This fault will be triggered if the drive delivers a current >100% for a period of time.

Action/test:

- 1) Check to see when the decimal points are flashing (drive in overload). If yes increase acceleration ramp time or reduce the load.
- 2) Check motor cable length is within spec, please refer to drive product manual for further information.
- 3) If the above checks are OK carry out resistant checks between U to V, V to W & V to W output phase for short circuits.
- 4) Check the load mechanically for a jam or stalled condition.
- 5) If fault continues, contact Invertek for further advice.

4. Fault code: **PS-ErrP** during operation

Product range: ODP & ODV

Principle: The drive has internal protection designed to protect against overload on the power or control electronics.

Action/tests:

- 1) Remove all motor and control connections from drive.
- 2) Safe all parameters you may require.
- 3) Reset drive to factory default, please refer to drive product manual for further information.
- 4) Enable drive with no motor connected, has fault been removed?
- 5) If yes check motor and cables for errors i.e. incorrect wiring, excessive cable length (refer to drive product manual for further information), phase to phase shorts or phase to earth shorts.
- 6) If the above checks are OK carry out resistant checks between U to V, V to W & V to W output phase for short circuits.
- 7) If fault persists after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

5. Fault code: ***O_Uo It*** trip

Product range: All

Principle: This fault is triggered by excessive voltage being applied to the DC Bus voltage.

Action/tests:

- 1) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 2) Check the drive internal DC Bus reading, for ODE product refer to parameter P00-08, for ODE-2 product refer to parameter P00-08 & for ODP product refer to parameter P0-20.
- 3) If fault occurs during deceleration of load either increase deceleration ramp time or alternatively install brake resistor.
- 4) If brake resistor is installed, ensure brake chopper circuit is enabled in parameter setup. Please refer to drive product manual for parameter setup.
- 5) If fault persists after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

6. Fault code: ***U_Uo It*** trip

Product range: All

Principle: This fault is triggered by a low voltage being applied to the DC Bus voltage.

Action/tests:

- 1) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 2) Check the drive internal DC Bus reading, for ODE product refer to parameter P00-08, for ODE-2 product refer to parameter P00-08 & for ODP product refer to parameter P0-20.
- 3) If supply voltage is too low, advise customer of problem.
- 4) If supply voltage is within specifications and the fault persists, complete service request form detailing the fault and forward to Invertek's Service department.

7. Fault code: **O-t** trip

Product range: All

Principle: Heatsink over temperature of the drive

Action/tests:

- 1) Check temperature around drive (max working temp 50°C).
- 2) If temperature is within specifications, turn off supply to drive and allow drive to cool to room temperature.
- 3) Check enclosure dimensions as specified in drive product manual.
- 4) Turn on supply to drive and check if fault has cleared.
- 5) Check the drive internal heatsink reading, for ODE product refer to parameter P00-09, for ODE-2 product refer to parameter P00-09 & for ODP product refer to parameter P0-21.
- 6) If fault still persists after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

8. Fault code: **U-t** trip

Principle: Heatsink under temperature of the drive.

Product range: All

Action/tests:

- 1) Check temperature around drive (min working temp -10°C).
- 2) Ensure ambient temperature around drive is within drive specifications.
- 3) Power down drive and wait 2 minutes to ensure DC Bus capacitors are fully discharged.
- 4) Check the drive internal heatsink reading, for ODE product refer to parameter P00-09, for ODE-2 product refer to parameter P00-09 & for ODP product refer to parameter P0-21.
- 5) Power up drive, is fault cleared?
- 6) If fault still persists after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

9. Fault code: **th-FLt** trip

Principle: Faulty thermistor on heatsink.

Product range: All

Action/tests:

- 1) Check temperature around drive (max working temp 50°C/ min working temp - 10°C).
- 2) Ensure ambient temperature around drive is within drive specifications.
- 3) Power down drive and wait 2 minutes to ensure DC Bus capacitors are fully discharged.
- 4) Check the drive internal heatsink reading, for ODE product refer to parameter P00-09, for ODE-2 product refer to parameter P00-09 & for ODP product refer to parameter P0-21.
- 5) Power up drive, is fault cleared?
- 6) If fault still persists after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

10. Fault code: **SC-trP** trip

Principle: Comms loss trip.

Product range: All

Action/tests:

- 1) Check communication link between drive and external devices.
- 2) Make sure each drive in the network has its unique address.
- 3) If fault persists, reset drive to factory default, please refer to drive product manual for further information.
- 4) If the above fault is not cleared after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

11. Fault code: **P-LOSS** trip

Principle: Input phase loss trip.

Product range: ODP & ODV

Action/tests:

- 1) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 2) Ensure firmware is current production version, please refer to drive product manual for further information. .
- 3) If supply is present, check parameter P0 22, 23 & 24 for each supply voltage.
- 4) Compare reading from Multimeter to reading in P0 22, 23 & 24 +/- 10%.
- 5) Default drive to factory setting.
- 6) If the above voltages are present but the fault is not cleared, complete service request form detailing the fault and forward to Invertek's Service department.

12. Fault code: **Ph-I b** trip

Product range: ODP & ODV

Principle: Phase imbalance trip.

Action/tests:

- 1) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 2) Ensure firmware is current production version, please refer to drive product manual for further information.
- 3) If supply is present, check parameter P0 22, 23 & 24 for each supply voltage.
- 4) Compare reading from Multimeter to reading in P0 22, 23 & 24 +/- 10%.
- 5) If the above voltages are present but the fault is not cleared, complete service request form detailing the fault and forward to Invertek's Service department.

General Troubleshooting

13. Description of fault: No display

Product range: ODE, ODE-2, ODP & ODV

Action/tests:

- 1) Remove all external wiring to 11 pin terminal connector.
- 2) Disconnect motor wiring.
- 3) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 4) For ODP, ODV & ODE-2 product check if 24V is present between terminal pins 1 & 7 of the terminal block.
- 5) For ODE-2 also check 10V output is present between pins 5 & 7.
- 6) For ODE product check if 10V is present between terminal pins 1 & 7 of the terminal block.
- 7) If no voltage is present after the above checks have been made, complete service request form detailing the fault and forward to Invertek's Service department.

14. Description of fault: Drive will not enable

Product range: ODE, ODE-2, ODP & ODV

Action/tests:

- 1) Remove all external wiring to 11 pin terminal connector.
- 2) Disconnect motor wiring.
- 3) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 4) Default parameters to factory default.
- 5) For ODP, ODV & ODE-2 product check if 24V is present between terminal pins 1 & 7 of the terminal block.
- 6) For ODE-2 also check if 10V is present between pins 5 & 7 of the terminal block.
- 7) For ODE product check if 10V is present between terminal pins 1 & 7 of the terminal block.
- 8) If voltage is present, hard wire a Link between terminals 1 & 2 of the terminal block
- 9) If drive enables, check external control wiring to drive.
- 10) If drive does not enable after the above checks have been made, complete a service request form detailing the fault and forward to Invertek's Service department.

15. Description of fault: **No analogue output**

Product range: ODE, ODE-2, ODP & ODV

Action/tests:

- 1) Remove all external wiring to 11 pin terminal connector.
- 2) Disconnect motor wiring.
- 3) Using an appropriate Multimeter check supply voltage to drive is within recommended specifications.
- 4) Default parameters to factory default
- 5) For ODP, ODV & ODE-2 product, check if 24V is present between pins 1 & 7 of the terminal block.
- 6) For ODE product check if 10V is present between pins 5 & 7 of the terminal block.
- 7) If supply voltages are not present, complete service request form detailing the fault and forward to Invertek's Service department.
- 8) For ODP, ODV, ODE-2 & ODE product, hard wire a link between terminals 1 to 2 on the terminal block.
- 9) Drive should now enable.
- 10) For ODP, ODV, ODE-2 & ODE product, hard wire a link between terminals 5 to 6 of the terminal block.
- 11) Drive should now ramp up to 50Hz.
- 12) For ODP, ODV, ODE-2 & ODE product, check 10V is present between pins 8 & 9 of the terminal block
- 13) If drive does not enable after the above checks have been made, complete a service request form detailing the fault and forward to Invertek's Service department.