



NOTICE: Always refer to the appropriate Vehicle Service Manual when troubleshooting electrical problems. See all GENERAL INSTRUCTIONS WARNINGS AND PRECAUTIONS



SEVCON MicropaK - PowerpaK

Diagnostic LED

This is mounted between the connectors on the front of the controller, It serves as a simple diagnostic tool as explained below:

| Number of Flashes | Fault Description |
|-----------------------|--|
| Constant illumination | No fault, normal condition |
| LED extinguished | Internal controller fault |
| 1 | Personality out of range |
| 2 | Illegal start condition or illegal steer switch inputs |
| 3 | MOSFET Short Circuit |
| 4 | Contactora fault or Motor Open-Circuit |
| 5 | Not used |
| 6 | Accelerator, Steer Pot or Speed Probe wire fault |
| 7 | Low or High battery voltage or BDI cut-out operating |
| 8 | Over Temperature |
| 9 | Contactora coil s/c |
| 10 | Encoder Fault |
| 12 | CAN bus fault |

Fault Messages and LED status / number of flashes

The fault messages are displayed on Calibrator, Display, and PowerpaK LED. The format for the faults shown on the display is as follows:

Fxyyy

x = Fault level (5 being the highest priority faults)

y = Fault number within that level

| Display Message | Calibrator Message | Led | Description and how to clear | Check... |
|--|--|------------|---|--|
| Hours counter | OK (lowest priority) | on | Traction operational and OK | No action required. |
| F01004 | BDI Cutout | 7F | BDI enabled and cut-out action initiated. | Battery charged. |
| F01005 | Thermal Cutback | 8F | Traction heatsink above 75C. Allow controller to cool. | Heatsinking, mounting, Surfaces clean, fan req. |
| F01008 | Encoder Fault | 10F | Speed encoder faulty or not connected, but configured on Digital i/p 6 config (Skt B pin 7) | Check speed encoder connection / functionality |
| F02000 (wire-off) F02001 (power-up) | Accelerator Fault | 6F | Accel. Pedal pressed at power up, or wire off. Recycle FS1 and Direction. | Accel. wiring. Accel Zero & Full Personalities. |
| F04003 | Sequence Fault | 2F | Direction or FS1 switch at power up. Recycle Directions or both. | Dir and FS1 in neutral and Dir / FS1 wiring. |
| F04004 | 2 Direction Fault | 2F | Two directions selected together. Recycle both Directions and FS1 | Direction switch wiring. |
| F04005 | SRO Fault | 2F | Dir. Switch selected > 2 seconds after FS1. Recycle FS1 and Dir. | Dir first then FS1, FS1 and Dir. Switch wiring. |
| F04006 | Seat Fault | 2F | Drive selected and no seat switch. Recycle Dir and FS1 switch | Seat switch, closed, seat wiring. |
| F04007 | Inch Fault | 2F | Inch switch at power up, both inch switches selected, or inching attempted with seat switch or Dir / FS1 selected. Recycle inch switches. | Inch switch in neutral at power up, only 1 selected, Seat / Dir / FS1 switches open. |
| F04009 | Battery Low | 7F | Battery < low battery personality. Recycle FS1 or Direction switch | Correct battery voltage, Discharged battery. |
| F04010 | Battery High | 7F | Battery < High battery personality. Recycle FS1 or Direction switch | Correct battery voltage. Loose or missing B+ to controller. |
| F04013 | Capacitor High | 7F | Capacitor Voltage > High battery personality. Recycle FS1 or Direction Switch | Correct battery voltage. Loose or missing B+ to controller. |
| F04011 | Pers Error | 1F | Personalities out of range at power- up. | Reset personalities out of range (displayed as----.-). |
| F04012 | CRC Error | 1F | One or more personalities have been corrupted. | Check all personalities then recycle key switch. |
| F05000 | Coil s/c | 9F | A contactora coil s/c or miswired. Recycle Key switch | Coil s/c, Drive connected directly to B+ve, wiring. |
| F05006 (drive) F05009 (power-up) | Mosfet s/c | 3F | MOSFET s/c Recycle FS1 or Direction | A / F1 F2 / B- power wiring, MOSFETs s/c. |
| F05008 | Line Contactora Welded | 4F | Battery Positive on controller before expected | Check line contactora, shorted motor cables to B+ |
| F05046 | Line Contactora did not close | 4F | Line contactora did not close after key on or main line fuse is blown | Check line contactora and / or main fuse |
| Various internal controller power up messages (highest priority) | Various internal controller power up messages (highest priority) | off | If any of these messages are displayed then the controller has failed one of the internal power-up checks. | Contact Sevcon. |