

## Defective Terminal Blocks on SMV 1-5hp Datecode: 1505, 1506, 1507, 1508, 1509, 1510, 1511

## Description of issue

The terminal block screws used for mains, ground (PE) and motor connections were enhanced to include captive screws to prevent users from losing the screws during installation of the product. SAP IDs did not change as a result of this particular enhancement.

It has been found that the captive screw terminal blocks are defective from the manufacturer. The torque required to force the screws beyond the stop is insufficient, allowing users to damage the product inadvertently. It is possible that during installation a user will back the screw into the stop, damage the threads and then tighten the screw by cross-threading. If there is not adequate thread engagement and the drive is subject to vibration, then a loose connection could develop. The table below describes the failure modes of a loose/lost connection for the mains, motor and ground connections on the terminal block.



Picture of terminal block

Terminal Position	Description of Potential Failure Mode(s)
Mains (L1,L2,L3)	If a mains position on the terminal block develops a loose connection then the drive should fault, trip a breaker or power-off.
Motor (U,V,W)	If a motor position on the terminal block develops a loose connection then the drive should fault.
Ground (PE)	If the ground position on the terminal block develops a loose connection but connection integrity is maintained then the drive should continue to function.
	If the ground position on the terminal block is completely lost (unlikely) then a potential shock hazard may be introduced to the system depending on the system wiring configuration.
	<u>Note regarding ground connections:</u> Many users do not use the terminal block for ground connections and instead use the provided fast-on or screw on the PCB.



**Recommended Actions (Only for inverters subject to vibration with ground connections on the terminal block)** Move the ground connection to the PCB screw to ensure the integrity of the ground connection. See pictures below and separate instructions on the next pages.

Pictures of ground connection moved to the PCB Screw





## Instructions for moving PE connection on SMV terminal block to the PCB screw

This procedure is for SMV 1-5HP drives date codes **1505**, **1506**, **1507**, **1508**, **1509**, **1510**, **1511** NOTE: This is only recommended if the drive will be subject to vibration and uses the terminal block for the ground connection.

- 1. Disconnect power from drive using the appropriate Lock-out Tag-out method.
  - a. **WARNING!** For SMV Nema 4 Drives with built in disconnects, the disconnect does not remove power from the drive. Shut off power at the source!
- 2. Wait at least 3 minutes to allow internal voltages to discharge.
- 3. Remove terminal cover. Remove 4 screws for Nema 4.



Loosen 2 screws for Nema 1



4. Remove the wires from the PE connection on the terminal block.





5. Add ring terminals to the wire(s) and connect to the PCB PE screw as shown in picture below.



6. Replace terminal cover.