Quantum Design

Service Note 1096-307

Operating Guidelines for the Motor Module used for VSM

The CAN motor module CM-A (QD part number 4101-100), which is used to drive the linear motor of the VSM option, dissipates a significant amount of heat when providing the large currents (sometimes over 1 amp) to the motor drive coil. Therefore, it is critical that adequate air cooling is supplied by the fan on the back of the Model 1000 Modular Control Center. If the motor module overheats, the current output is turned off abruptly until the amplifiers cool sufficiently, at which point the current is turned back on. This causes erratic behavior of the motor and presents a hazard to the user. It might also result in damage to the hardware or your research sample.

To help prevent such overheating effects, please follow these guidelines:

> ⚠ **W A R N I N G !**
> As with any CAN module, turn off the power to the Model 1000 before inserting or removing the motor module.

- Regularly—every few months—clean the filter of the air intake fans on the back of the Model 1000. In the case of the upper fan for the module cooling (this is the most critical fan), remove the filter by first pulling off the black plastic guard. The lower fan, for the power supply drawer, can be cleaned by turning off the Model 1000 and vacuuming the outside of the filter.

- Maintain a laboratory temperature below 25 °C.

- Keep the Model 1000 at least 25cm away from walls so that air flow is not impeded.

- Cooling air inside the Model 1000 flows upward past the module and exits at the grate by the front plate of the modules. Make sure these grates are unobstructed.

- Try to minimize the dust level in the lab and keep the floors clean.

- Connect all cables before activating the VSM option, and do not unplug the motor drive cable while the option is activated. Reconnecting the cable in this state can lead to motor malfunction.

Quantum Design is continually working to improve the handling of error conditions such as this by enhancing the software, module firmware, and module hardware. Updates to option software (such as the PPMS VSM option), new service notes, and application notes are posted on our website www.qdusa.com. Firmware and hardware updates are handled on an individual basis by Quantum Design service.

If you are encountering performance problems with your motor module after observing the above maintenance steps, please contact your local Quantum Design service representative.