

Troubleshooting HEMOCHRON® Elite Error Messages

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Background and objectives: The HEMOCHRON® Elite is used in the cardiovascular operating rooms (CVOR), catheterization labs and Interventional Radiology for activated clotting time (ACT) testing at our quaternary care hospital. Eleven of these devices were purchased, implemented in 2010 and 2011, and connected to the hospital computer network via the AegisPOC® POCT application. AegisPOC® receives and sends instrument configurations, reagents, operator and patient information. The devices are programmed for electronic quality control (EQC) every eight hours and set for operator ID and liquid QC lockout. All users of the Elite devices (nurses, anesthesia assistants and perfusionists) received training by the vendor and POCT supervisor. In 2012 we began to see the following messages: “Detector Blocked EQA Failed”, “SBIOS CS Errore2” and “Fault AC Adapter TOO HIGH Disconnect AC Adapter Immediately”. Sorin Group staff, International Technidyne Corporation (ITC) technical support specialist, the POCT team, and hospital clinical users have been working together to determine the root cause of the errors and minimize impact to clinical care.

Methods: POCT team members are informed by the clinical POCT users of any malfunctions and error messages generated by the Elite devices. These are documented and tracked by device serial number. The AegisPOC® software is reviewed regularly for instrument synchronization, detector blocked messages, EQC failures as well as liquid QC and patient results monitoring. **Results:** The Detector Blocked Errors are generated when a cuvette is left in the device and the device attempts to run EQC. The users are instructed on the reason for these errors. They are reminded of the importance of removing the cuvette immediately after the result is displayed to avoid damage to the internal electronic components and that an EQC in progress must not be stopped with a cuvette but cancelled from the device menu screen. In some instances the Detector Blocked Error displays but no cuvette is in the device. SBIOS CS Errore2 was observed in six out of eleven devices. It was suggested by ITC that the SBIOS CS Errore2 may be generated if the device is dropped. The CVOR has attached Velcro strips to devices and counter surfaces to minimize devices dropping to the floor. According to ITC, the Elite devices were tested for withstanding a drop to the floor. “Fault AC adapter TOO High” was displayed on eight out of ten HEMOCHRON® Elites. UPS/surge protectors were installed in Interventional Radiology Nov 29 2013, in Cath lab Dec 2 2013 and the CVOR Jan 7 2014 to mitigate power surges. The Elite devices continued to generate “Fault AC adapter TOO High” messages. ITC suggested that the Elite power supply transformers may need replacing. The weekly hospital generator test affects the emergency power outlets. ITC suggested that over the course of a few years the HEMOCHRON® Elite power supply transformers that are plugged into the emergency power outlets might be compromised by the surges in power associated with the weekly generator test. Sorin Group agreed to replace all the power supply transformers for the Elite devices. Despite a new power supply transformer in Interventional Radiology, three months later the “Fault AC adapter TOO HIGH” message appeared again on the Elite device. The ITC service department will now assess/repair the instrument. **Conclusions:** (1) UPS/surge protectors may be necessary for some POCT devices. (2) POCT devices should be firmly secured to a surface with Velcro or similar anchoring method. (3) Continuous communication between the end user, the POCT team and vendor is invaluable when troubleshooting POCT device issues.