Currently, 40% of all energy use in the United States is consumed by buildings. This energy consumption is due primarily to HVAC systems. Therefore, there is a need for detecting and diagnosing faults in packaged air conditioning units used for industrial plants or factories. The Fault Detection and Diagnostic Device (F3D) is a device to meet these needs. It is portable, non-invasive, analyzes data quickly, and can be manufactured for under $1,000. The F3D analyzes temperature and pressure data on the compressor, condenser, expansion valve, and evaporator to determine faults and cost-saving potential. The detected faults include overcharge, undercharge, dirty filter, oscillating superheat, liquid line restriction and a faulty compressor. When the F3D analyzed data from four known HVAC faults, it correctly identified three of those faults. Also, out of nine field tests performed, four of them were successful and yielded likely faults. The faults found during the successful tests have yet to be fully confirmed. Overall, with the use of the user manual and graphic user interface, the F3D is a user friendly device that is able to collect data, analyze it, and diagnose faults on HVAC units.