

IMPORTANT NOTICE

Application Notice: Modbus Firmware Upgrade from Firmware version D (and lower) to Firmware L (and higher)

Modbus Firmware version L has added many new registers. During the development of this version a Modbus protocol error was discovered and corrected.

1. Bug fix in firmware version "L"

This version correctly responds to the requested registers. With older versions, a query for a group, or even a single register, would always return 100 registers. It appeared that some of the DAHS systems may have inevitably relied on this in acquiring data from the XC-6000. Thus, when used with the newer version "L" it appeared to be "broken." One fix for this is to always specify 100 registers to be read.

2. Suggestions and requirements for reading all of the registers

Firmware version "L" now contains 200 registers (register 0 – 199). However, there is a **maximum of 124 registers** that can be requested at one time based on the Modbus Protocol. It will require at least 2 requests to read all 200 registers.

3. Summary of additional registers and features for Firmware version "L"

Additional registers (Please refer to "STS Modbus Regs - Rev_1 1 5-12-2015.xlsx") which can be downloaded from : <http://www.apexinst.com/downloads/public/Apex%20Software/>

- Standardized Volumes
- Countdown counter before clearing out data from the previous test run (see more below)
- Complete Pre and Post Leak test data such as date, time, PASS/FAIL, flow rate, maximum allowed flow rate, Maximum Vacuum level, etc.
- Trap ID information
- Console ID data
- Temperatures and Pressures in English Units

Feature to temporally hold data from previous test run:

This is to allow the DAS system time to get the "final" data from the test run before it's clear for the next test. The countdown timer is in seconds, registers 128. This value is set in the PC XC-6000 software. It's located from the main screen, under the "CONFIG/UTILS" tab (this is a SYSTEM setting and does not follow the "test run profile") The value for this time-to-wait is register 127.

4. Modbus holding register with respect to "Modbus Regs NEW 17-DEC-2013.xlsx"

With respect the Apex's Registers list, the starting register "0" (for Vacuum_A) is the **1st register** for the "Modbus holding register" #40000. Please see

http://www.csimn.com/CSI_pages/Modbus101.html#mb101_reg1 under "**Modbus: When 40001 really means 1, or 0 really means 1**"