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CP-3800 Software Update Notes

Software Version 3.1.1D

These software update notes describe the most important new features implemented in software version 3.1.1D of the CP-3800. In addition, for those upgrading from earlier versions of software, information is given on the most significant new features implemented since version 1.0 of the CP-3800. Previous versions of 3800 software are 1.0.5, 1.0.6, 1.1.4, 1.2.5, 2.0.5, 2.1.5, and 3.0.5B.

3.1.1D Features

8200 Solvent Plug Size

The ability to select a Solvent Plug size in the User Defined mode was added to the second page of the User Defined mode. Previous versions of the CP-3800 with 8200 control used a pre-defined Solvent Plug volume of 1 ul. Allowing user selection of the solvent plug size gives operators more flexibility in engineering their injector and analysis methods and allows them to avoid excessive solvent vapor volumes in the injector in hot splitless applications.

Type 1 EFC Calculation Enhancements

In previous versions of the CP-3800, the flow program for Type 1 EFC was calculated by the system and maintained invisible to the user. This process required that the operator explicitly activate the method every time a change was made to the Type 1 EFC pressure program or constant flow program. Version 3.1.1D calculates new flows based on temperature, barometric pressure, split state, and split ratio without requiring an explicit method activation step by the operator. Charging flow (used to even out flow changes during pressure ramps) has been improved to address low pressure, moderate to high split ratio applications. The effect of these changes is to very subtly change the behavior of Type 1 EFC. It is probable that no change in the operation of the 3800 will be observable.

3.0.5B Features

Micro-TCD Control

The most important new feature added in Version 3.0.5B is control of the new Micro-TCD. The Micro-TCD has an internal volume of only 200 nanoliters and is designed to work with capillary columns without makeup gas.

Method Lock

Version 3.0.5B added the capability for the user to lock and unlock individual methods. Any method, except for method 8, may be locked by entering a password (numeric code) for that method. A locked method can be activated for use and viewed, but it cannot be edited.

Enhanced Ethernet reliability

With Version 3.0.5B, software support for the Ethernet communication interface was changed to make the Ethernet communication less susceptible to Ethernet network problems that cause large bursts of RIP or broadcast packets. Previously, large numbers of RIP and broadcast packets occurring over a short period of time could cause the CP-3800 GC to disconnect from the network.

**Valve Oven
Differentiation**

Version 3.05B allows the specification of large and small valve ovens. Multiple valve installations should specify the large valve oven while single valve installations should specify the small valve oven. Remote control devices such as the Star Workstation will designate "valve oven" without differentiating type.

2.1.5 Features

**Constant Flow
Programming**

Version 2.1.5 added the ability to program constant column flow with types 1 or 5 Electronic Flow Control from the local user interface. This ability was previously only available using Star Workstation control. Constant flow allows the user specify a specific column flow rate using a split / splitless injector, such as the 1079 Injector, and the system automatically calculates the appropriate pressure program. This feature is programmed on page 2 of the Flow / Pressure screen for types 1 or 5 EFC.

**Expanded 8200
AutoSampler
Control**

Version 2.1.5 added dual automation capability to the 3800. Using this feature two 8200 AutoSamplers can be mounted on the 3800 and run simultaneously. Note that in dual automation mode the 8200 method is the same for both autosamplers. For additional information on the dual automation mode, please refer to the operating instructions for this option, P/N: 03-914754-00.

**8200 User
Defined Mode**

Version 2.1.5 added the "user defined" mode to the available modes of operation of the 8200 AutoSampler. The user defined mode gives the user more control over the operating parameters of the autosampler. The specific parameters that are added are:

- the hot needle time (pre-injection delay)
- needle residence time (post-injection delay)
- vial needle depth
- syringe wash time

Priority Sample

The priority sample feature has been added to 3800 automation. This feature is accessed from the Automation Select / Edit menu and allows interruption of the currently running automation sequence to run a priority sample. Note that if a priority sample is requested during a sample run, it will be acted upon after the current run ends.

**FID Flame-out
Fault Disable**

The Flame Ionization Detector flame-out fault can now be disabled. This feature is accessed from the 3800 Setup screen, under "Miscellaneous". If the "Enable check for FID flame-out" parameter is set to "No", the FID will continue to operate, even if a flame-out condition is detected. This feature also facilitates the use of a Photoionization Detector on the 3800.

Ready-in Signal

The polarity of the ready-in sync signal to the 3800 analog port is now programmable. This feature is accessed from the 3800 Setup screen, under "Miscellaneous". The default setting "Yes" means that a closed-contact indicates the external device is Ready.

Saturn 2000R Support

Version 2.1.5 supports the low cost Saturn 2000R product, allowing access to a limited number of 3800 Setup parameters from the Star Workstation. The specific parameters are:

- the column oven coolant and temperature limit
- zone 1 (Front 1079 injector) coolant and temperature limit
- Front Type 1 EFC minimum flow
- column length and ID for the front 1079

In addition, note that the EFC outlet pressure is hardwired to “vacuum” and the carrier gas is hardwired to “Helium”.

Valve States for SPT Applications

The valve states for SPT related valves have been reversed, such that the de-energized state is now “Desorb” and the energized state is “Trap”. Star Workstation 3800 control has also been changed in version 5.3 to reflect this change.

EFC Calibration

It is now possible to calibrate any number of EFC modules on a given 3800 without having to “save and exit” between each calibration.

Pre-Version 2.1.5 Features

Detector Electronic Flow Control (DEFC)

The most significant feature added in version 2.0.5 was electronic control of detector gas streams (DEFC). When detector EFC hardware is installed, the required gas flows for individual detectors can be set in the 3800 method. Pressing the Adjustments soft key in the detector section of the GC method and using the page down key to access page 2 accesses the detector EFC parameters.

Status Screens

Version 1.2.5 changes: When the status key is pressed on the 3800 keyboard, a menu is displayed which allows the display of status based on channel (front, middle and rear) or device (Local Automation, Injector/SPT/Valve Oven, or Detector/Methanizer). Note that control of Valve Ovens has been moved from the Sample Delivery section to the Injector section of the 3800 method.

Version 2.0.5 changes: The status screens now indicate both setpoint and actual values for method parameters. In addition, an external device status screen has been added to indicate whether a device connected to one of the 3800 analog out ports is in the Ready or Not Ready state.

Local Language

The 3800 local user interface is now programmable in five languages: English, French, German, Italian, and Spanish. To change languages from the default of English, press the Setup key on the 3800 keyboard, choose Edit Setup followed by “Edit Time and Date” and make the selection from the available menu.

EFC Gas Saver

The automatic gas saver feature for type 1 EFC has been removed. Due to this change, the split vent flow rate no longer drops to minimum flow when a pressure ramp is started. To conserve carrier gas during a run, the split ratio

should be time programmed to a low value after the injection is complete.

TSD Bead Power

The method default state for TSD bead power has been changed from ON to OFF. This parameter must be turned ON before operating a TSD.

Workstation Method Activation

Prior to version 2.0.5, a method downloaded from the Star Workstation would overwrite the current active method. The downloaded method is now written to 3800 method 8 and method 8 is then activated. Method 8 should be reserved for this function if the Star Workstation is used for 3800 control.

Time Zero Events

Exercise caution in the use of time zero (0.00 min) when building a 3800 method, which includes EFC. Do not build an EFC pressure ramp with an initial hold time of 0.00 min (use a minimum of 0.01 min). Do not program a split state change at 0.00 min if a pressure pulse injection is also being programmed in the same run. When using constant flow mode from the Star Workstation, always use a minimum initial column oven temperature hold time of 0.01 min. Failure to observe these recommendations may cause the minimum flow to be invoked throughout the run. If this occurs, normal operation may be restored by resetting all 3800 methods to defaults.

Inactive Components

If a specific detector is not being used then it is recommended to turn it OFF in the method. For those detectors that have an Electronics ON/OFF function, set the electronics to OFF if the detector is not being used. This is especially important if a detector has a fault, such as a FID flame-out. In general, components that are not used in the active method should be turned off. Heated zones that are not being used should also be turned OFF.

EFC

Under certain extreme conditions of EFC programming, such as changing abruptly from a very high split ratio to a low split ratio, the 3800 Not Ready light may flash momentarily. The actual EFC control is perfectly reproducible and chromatographic performance is not affected.

Faults

If a fault is detected which shuts down a 3800 component (disabling fault) or the entire system (hazardous fault), then in addition to correcting the fault the GC must be powered OFF and then ON again to clear the fault.

STOP Key

The only function of the STOP key on the 3800 keyboard is to stop the current run. It does not duplicate the functions of the Reset key on some previous Varian Gas Chromatographs. For example, it does not reset the coolant time-out or abort the Column Oven stabilization time. The coolant time-out can be reset by re-activating the active method.

Stabilization Time

The default 3800 column oven stabilization time has been changed from 2.00 minutes to 0.50 minutes.