ISCO GLS SOFTWARE HISTORY

REVISION 3.22
Software Release Date: 1/11/04

Corrections: The default will now be to <u>not test</u> for bottle full.

Enhancements:

1-   Added diagnostic routine was added for internal use that reports the number of purge counts. It can be access by using the command "PURGE" from the login menu. It is not for customer use.

2-   Added supports for new languages now include Czech, Portuguese, and Dutch in addition to Swedish that was added in the previous release. Although the code is in place for Dutch and Portuguese, we have not yet received the translations, so those

The Languages, revision, and access codes for the language translations are:

German	2003_03_13	437626
Spanish	1999_07_16	7726474
Japanese	2004_03_29	52726
French	2003_01_02	373624
Swedish	2003_11_14	7933474
Czech	2003_11_12	20324
Italian	2003_02_07	4825426
Dutch	Not Yet Translated	38824
Portuguese	Not Yet Translated	7678

Added diagnostic routine was added for internal use that reports the number of purge counts. It can be access by using the command "PURGE" from the login menu. It is not for customer use.

3.0 Bug Fixes

None

REVISION 3.21
Software Release Date: 29/05/03

Corrections: The default will now be to <u>not test</u> for bottle full.

Enhancements:

1-   SPA 1477 is a software option available for GLS and Glacier samplers.   This SPA allows for entry of PAUSE and RESUME times. PAUSE and RESUME times must be entered in pairs. Up to nine pairs may be entered with a total span of one week. PAUSE and RESUME times repeat weekly.

2-   Key functions:

a. ENTER → "Enters" the current value for hour, minute, or day. Steps through these selections one at a time. If at the CLEAR option, all PAUSE and RESUME entries are

cleared and the cursor is moved back to the first PAUSE. If at the DONE option (or last RESUME is entered), all current selections are accepted and the PAUSE and RESUME entry is complete.

b. ARROW → If no editing has started, it will move from the current entry one entry group. "HH:MM DD" is an entry group. If currently editing HH or MM, it will be a "backspace" character. If at MM, but have not yet started editing, it will jump to the HH. If at DD, it will step through the days of the week.

c. STOP → If editing HH or MM, it will clear the current entry. At all other times, it will exit PAUSE and RESUME entry without accepting any changes.

d. An option to sample at the RESUME time is also available. If you choose to take a sample at the RESUME time, the interval to the next sample will be reset at that time.

3- A Swedish language option is now available. The translation has not yet been done, but the software is available to access it when it is done. To access Swedish, enter '7'+'9'+'3'+'3'+'4'+'7'+'4'+<Enter> while at the standby screen.

REVISION 3.20
Software Release Date: 24/03/03

Corrections:

1- In version 3.10, a MAXIMUM RUN TIME for flow paced programs was introduced. RUN TIMES greater than 18 hours did not work. The MAXIMUM RUN TIME feature now works as intended.

2- When a language change is made, the day-of-the-week is now displayed in the correct language.

3- Version 3.10 software did not allow for the conversion of a GSS to a GLS. This conversion can now be accomplished by entering '7' + '3' + '4' + '6' + '4' + '8' + <Enter> (REINIT) while at the standby screen. This conversion code is for internal use only!

4- When converting from a GLACIER to a GSS, temperature information will no longer be displayed.

Enhancements:

1- The date of the most recent text translation for the current language will be displayed as part of VIEW LOG. This information screen will be displayed for all languages except English. It will be of the form: TEXT TRANSLATION REVISION: YYYY_MM_DD.

2- Current software does not allow for resetting the pump counter unless the pump warning has occurred. If the user changes the pump tube before the warning occurs, he can now reset the pump counter by entering '6' + '3' + '9' + '8' + '8' + '2' + '3' + <Enter> (NEWTUBE) while at the standby screen.

REVISION 3.10
Software Release Date: 09/15/02

Corrections:

1- This release will run the refrigeration system whenever it is powered, except for the time between pressing RUN and taking the first sample. This allows for a simple rule for when the refrigeration system would run, yet maintains the power savings advantage of cooling only when a sample is present.

2- For Glaciers powered, but off, the screen will display: "REFRIGERATION ON, SAMPLE TEMP: xx.x °C".

3- Instead of a DELAY TO START, this revision introduces a SET START TIME option that allows the user to set the start time as a clock time. Options will be to have NO DELAY TO START, or SET START TIME. If the SET START TIME option is selected, you will see: "FIRST SAMPLE AT: hh:mm   dd-mm-yy" for time paced programs, and "START FLOW COUNT AT: hh:mm   dd-mm-yy" for flow paced programs.

4- If the entered start time has passed prior to running the program, the program will start immediately. Otherwise, the countdown to the start time will be displayed by alternating the above screen with: "CURRENT TIME: hh:mm:ss   dd-mm-yy".

5- For flow paced programs, version 3.0 would cause the GLS/Glacier to take a sample at the enable time if it was disabled at the start time. This sample will no longer be taken – there is no sample at the start time, therefore, there should be no sample at the enable time.

6- For flow paced programs, version 3.0 would cause the refrigeration system in a Glacier to start after becoming enabled if it was disabled at the start time. It would also say that it was waiting to take sample 2 even though no first sample had been taken.

Enhancements:

1- A MAXIMUM RUN TIME option has been added. This option will be available for flow paced programs only, and will be entered after the start time. The run time will be entered in hours with a maximum of 999 hours. For users who would like to run the program indefinitely, a maximum run time of 0 (zero) should be entered.

2- The GLS/Glacier pin F enable has always been "once enabled, stay enabled". By default, it continues to operate in this way. However, an option to turn it into a REPEATABLE ENABLE is now available. To access this option, enter '1' + '6' + '4' + '0' + <Enter> or '3' + '6' + '2' + '2' + '5' + '3' + <Enter> (ENABLE) at the standby screen.

3- The GLS/GSS/Glacier will now speak Japanese. To set the language to Japanese, enter '5' + '2' + '7' + '2' + '6' + <Enter> (JAPAN) while at the standby screen.

REVISION 2.11
Software Release Date: 23/04/01

Corrections: A delay at power-on time occurred as the GLS was updating RAIN information for the time it was not powered. The GLS does not even store RAIN information (bug is related to GSS), but did the updating anyway. Version 2.11 does not update RAIN information at power-on time for the GLS.

REVISION 2.10
Software Release Date: 28/11/00

Corrections: Sample calibrations can now be done with the liquid detector shut off.

Enhancements: Added a "pump continuous" function that is activated from the standby screen. To purge, press '1' then ENTER. To pump, press '3' then ENTER. Press the STOP key to halt.

REVISION 1.10
Software Release Date: 06/08/99

Corrections:
   1-   The calibrate option should not have been available if the liquid detector was disabled. You can no longer calibrate if the liquid detector is disabled.

   2-   Several problem areas have been identified and are listed below.
        - The BOTTLE FULL function does not work for ¼" suction lines.
        - A sample size of at least 60 ml is required.
        - A post-sample purge of at least 100 counts is required.

   3-   If any of the above listed items are present, no BOTTLE FULL indication will be given. With the GLS, the user has no control of the post-sample purge so the purge will always be at least 100 counts.

   4-   In addition, for 3/8" suction lines, the option to shut off the BOTTLE FULL function has been added. To change this option: press '3'+'8'+'5'+'5'+Enter ("FULL" on phones) while at the main menu... then answer the BOTTLE FULL DETECT? question the way you want the option to work.

Enhancements:

   1-   During Sample Calibration The volume in the pump tube between where the liquid is detected and the bulkhead fitting was not being taken into account when calculating the pump table's scale factor. The pump table consists of values representing how much liquid is dispensed with each pump count. The scale factor is a multiplier to the table values. It is designed to compensate for differences in pump tubes, suction lines, liquid detectors, etc. Since this pump tube volume was not used in the calculation of the new scale factor, the new "calibrated" volume tended to overshoot the expected volume. This effect was especially noticeable for small sample volumes. The pump tube volume is now taken into account.

   2-   Small sample volumes for calibration should not be recommended because the sample-to-sample repeatability becomes very significant. The GLS has a repeatability specification of +/- 10 ml. This is 20% of a 50 ml sample volume and it could be either high or low! Our customers generally expect to calibrate closer than that. To this end, the minimum sample volume for calibration purposes is now 100 ml. Previously, the GLS used the programmed volume as the calibrate volume and still does if that volume is above 100 ml. If the programmed volume is below 100 ml, the calibrate volume becomes 100 ml.

   3-   Sample volumes less than 40 ml and suction lines longer than 20 feet, the volume delivery routine could potentially deliver too much sample. This occurred because the maximum head (the larger of the suction line length and 20 feet) was used to calculate the initial estimate of the number of pump-counts-with-liquid-detected to deliver the volume. To eliminate the possibility of "slugs" causing false determinations of head, 50 pump-counts-with-liquid-detected are required before the head is calculated. If the head is low, the ensuing calculation results in a count-to-deliver the-expected-volume smaller than

what has already passed. Which means: more liquid has already been delivered to the bottle than what was programmed. To lessen this effect, the "last known head" value is now used to calculate the initial estimate of pump-counts-with-liquid-detected to deliver the expected volume. With this change, small sample volumes can now be delivered much more accurately.