GLOBAL HEADQUARTERS
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Heatpulse
Technical Support

GUI & STD Upgrade Procedure

Rev. C June 2021

Preamble

When upgrading the GUI controller to a new software version, or installing a new GUI controller, it is necessary to also update the STD software version to match.

This procedure is designed to guide an engineer through the upgrade and update processes.

Required Tools

- Standard small screwdrivers for D-type connectors
- Needle-nose pliers
- Small adjustable or mini spanner/wrench set
- If upgrading from Win3x:
  - USB 3½" Floppy Drive
  - 3½" Floppy Disk(s)

Contents

1. Hardware Upgrade – Start Here

- Before beginning make a note of ***all*** settings on the existing GUI Controller in the following screens (e.g. paper notes or photographic):
    - [UTILITIES] [CONFIGURATION]
    - [UTILITIES] [AUTO DELETION]
    - [SETUP]
    - [DATALOG] [LOG SETUP]
    - [LOG] [PASSWORD MANAGER]
    - [LOG] [GEM/SECS] (if applicable)
    - [LOG] [GEM SETUP] (if applicable)

- Make a back-up of all recipes that need to be moved to the new GUI controller
    - Consult with the customer's Process Engineer and/or Equipment Owner
        - On a Win3x system, backups will be made to floppy disk(s)
        - If only the software will be upgraded this step is not strictly required, but it is recommended to make backups of recipes to a host or USB drive on a regular basis

- **ATP Calibration** is now performed through software on the GUI controller
    - Remove the 25-pin ATP connector on the rear of the tool and pull back into the Utility Panel
    - Blank off the hole with the supplied panel using the existing nuts
    - Cover the exposed soldered wires using the included cable shell kit
    - Select one option:
        - **Either:**- Feed the new 25-pin to 25-pin serial cable through the tool and connect the ATP rear panel connector to COM4 of the GUI computer
        - **Or:-** Pull the existing cable with new shell back through the tool and connect directly to COM4 of the GUI computer

- If replacing an older Win3x, WinNT or WinXP GUI controller:
    - Power off the Heatpulse 8xxx and remove the controller
    - Install the new Win10 GUI controller into the Heatpulse 8xxx

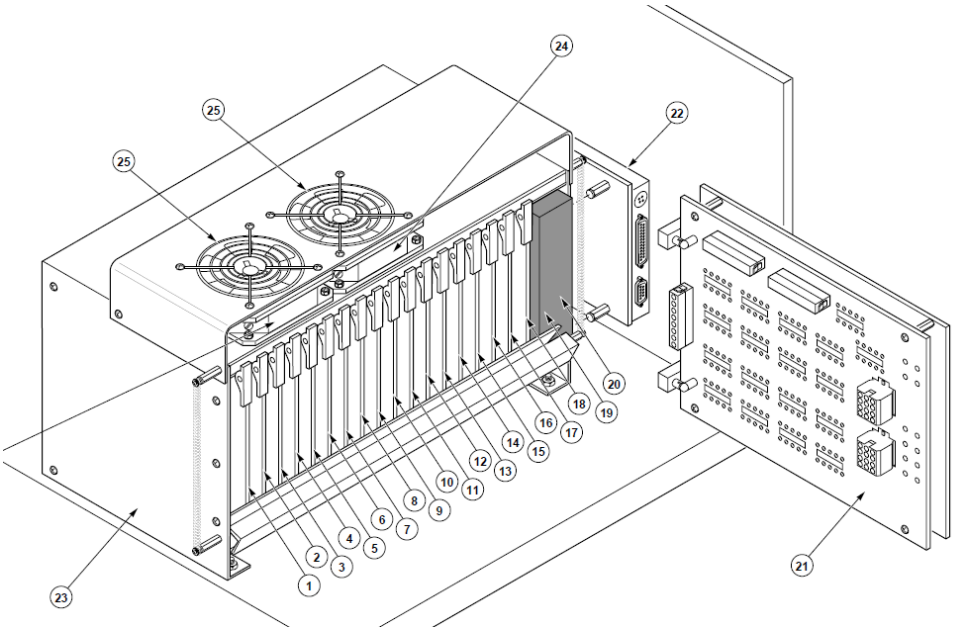
- Using the supplied keyboard/mouse splitter, connect the keyboard directly to the GUI controller
    - The mouse connector is not used
    - **Note:** The old front/rear PC Companion switch is no longer used

- The system now also supports a USB keyboard
    - see NOTE below

- Remove the front panel-mounted 3½" floppy drive and replace with the USB port and cable
    - The cable can be connected to any free USB port on the new GUI controller

- **IMPORTANT**

    - Replace the existing COM1 cable (usually 25-pin to 9-pin) with the new 9-pin to 9-pin cable (7100-9393-01) supplied in the kit
    - COM1 on the GUI connects to COM1 on the STD Breakout Board
        - The Breakout Board (item 22 below) is located on the extreme right of the card cage when looking from the rear of the tool
        - There are two 9-pin connections
            - COM1 to the GUI
            - COM2 to the robot controller

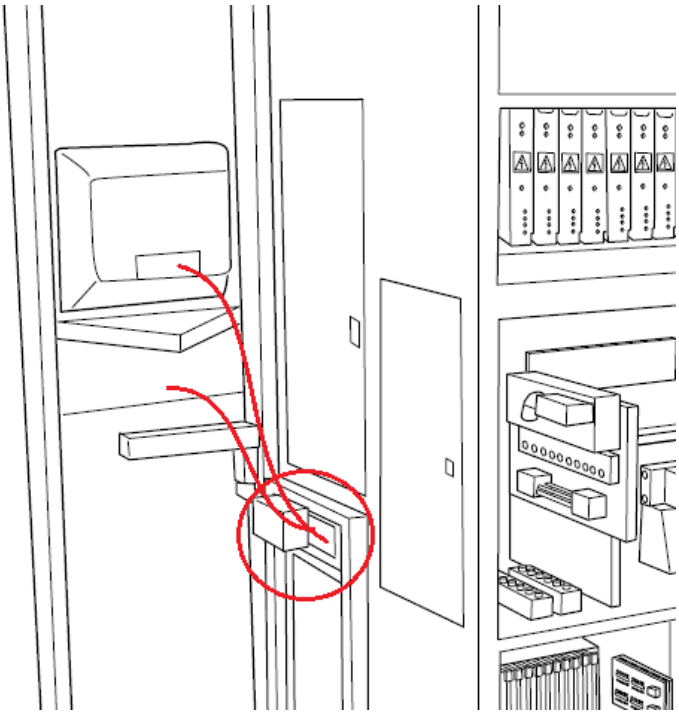


NOTE

The latest upgrade kit includes a new panel-mounted keyboard and a double USB panel-mount port.

It is recommended to modify the existing side panel to accept the dual USB port using a metal hole punch (see below).

Internally, the USB cables can run to any USB port on the GUI controller.
The touch screen and keyboard connections are made externally.



NOTE

All new Win10 GUI Upgrade kits are shipped configured with USB touch screen drivers pre-installed unless the customer has specifically requested otherwise.

The GUI Controller can only work with either USB or the older serial touch screen.

This is a restriction from the touch screen driver supplier and not a problem with the GUI controller.

DO NOT attempt to modify the touch screen driver without first contacting Plasma-Therm Technical Support.

Changing the driver requires a modification to the Windows® Registry and could render the GUI Controller non-functional.

2. Hardware Upgrade – WinNT Controller (IBM or Dell)

- GUI controllers with WindowsNT® also had a UPS installed
  - This is no longer used and can be removed from the system
  - The previous UPS serial connection (COM4) is now used for the ATP calibration as detailed in Section 1

- Proceed to **Section 4**

3. Hardware Upgrade – WinXP Controller (Dell or custom build)

- COM2 to COM5 were provided via a 4-way serial card (DigiNeo) inside the computer and a 1-to-4 splitter cable (see below)

- The new computer has multiple serial ports and no DigiNeo card
  - Label all cables carefully before beginning:
    - COM2 << SECS >> Splitter Port1
    - COM3 << ROBOT TEACH SW >> Splitter Port2
    - COM4 << was UPS now ATP >> Splitter Port3
    - COM5 << was TOUCH SCREEN >> Splitter Port4
  - Remove the splitter and all adapters from the serial cables

- Proceed to **Section 4**

4. Hardware Upgrade – Win3x (DOS various suppliers)

- Connect COM2 (SECS), COM3 (Robot), COM4 (ATP) directly to the named ports on the back of the GUI PC
- COM5 (Touchscreen) is now via USB
  - see NOTE in section 1
- Connect the VGA cable
- Connect the original power cable to the new GUI controller and turn on the power switch next to the cable
- Proceed to **Section 6**

5. Software Upgrade – Software Only

- This section is for software updates only
- Copy the new version of the self-extracting EXE file to a USB medium
- If required by the customer, perform an updated virus check on the medium before inserting into one of the Heatpulse USB ports
- [EXIT] the GUI application to Windows® desktop
- Using File Explorer, navigate to the USB drive and select the EXE file
- A dialog will appear requesting the type of system to be upgraded
  - Select [STEAM] for STEAMPulse systems only
  - Select [NON-STEAM] for all other systems
- The file will inspect the C:\ drive and determine whether the system application is installed
  - If there is no C:\AG directory, a clean, new installation will be created with a default configuration
  - If C:\AG is found, only the files that have changed will be updated
- Once the GUI files have been updated, a pop-up will ask whether the STD software should also be updated – Select [OK]
    - A DOSBox window will open and the system will automatically connect and begin the STD download
    - This will take approximately 10 minutes
    - Once completed, the window will close and the STD software will perform some internal accounting
    - The system will reboot – aligner and robot will home
- Proceed to **Section 7**

6. Software Setup (all hardware upgrades)

- Power on the Heatpulse 8xxx
- If the GUI controller does not initially start, power on the PC using the large black "soft" power button behind the flip-down access panel on the controller front side (rear of tool) – The blue LEDs on the SSD drives should illuminate and activity should be observed

NOTE

The latest Win10 GUI controller motherboard is configured in BIOS to always power-on when the mains supply is energized.
This includes a "soft" shutdown via the Windows® [Start] button.

This power-on function will only work if the supply has been absent for approximately 10 minutes.

If the mains supply is removed and restored within 60 seconds, due to residual charges in the DC supply, the GUI controller will also reboot as expected.

There is therefore a period of approximately 1 to 10 minutes during which time the GUI controller will not automatically reboot.
In this case it will be necessary to press the "soft" power button located behind the flip-down panel of the controller.

- Once the PC has booted, the Heatpulse software will start automatically
  - Log in using the Level 4 password '**AGER**'
  - Likely there will be multiple alarms due to the mismatch in software versions between the new controller and the STD – Ignore for now
  - The software versions in the top left-hand corner will be different
  - Use the [EXIT] button to quit the GUI application
  - In Windows® File Explorer, navigate to C:\AG\STD
  - Double click the batch file named '**INST8100 - WIN7'**
    - A DOSBox window will open and the system will automatically connect and begin the STD download
    - This will take approximately 10 minutes
    - Once completed, the window will close and the STD software will perform some internal accounting
    - The system will reboot – aligner and robot will home

7. Final Configuration

- After the STD has rebooted, restart the GUI application by clicking the logo icon on the TASKBAR
  - **Do not** use the application logo on the desktop (This will start the ATP calibration program in stand-alone mode)

- The GUI should start normally
  - In the top left corner, both software versions should match
  - Using the data collected earlier, modify/check system variables in the following screens:
    - [UTILITIES] [CONFIGURATION]
    - [UTILITIES] [AUTO DELETION]
    - [SETUP]
    - [DATALOG] [LOG SETUP]
    - [LOG] [PASSWORD MANAGER]
    - [LOG] [GEM/SECS] (if applicable)
    - [LOG] [GEM SETUP] (if applicable)

    - Press [SAVE] to store the data and transfer to the Heatpulse

  - Using the new front panel USB port, restore all recipes to the correct directories from the backup media

NOTE

If the gas panel hardware configuration changed between the old and the new software versions, the programmed gas flows will be shown as zero in the [RECIPE] screen.

This is a safety feature to prevent potentially toxic or corrosive gas combinations when copying recipes between machines with differently configured hardware.

In this case it will be necessary to manually enter all gas flows and [SAVE] each recipe to be compatible with the new hardware configuration.

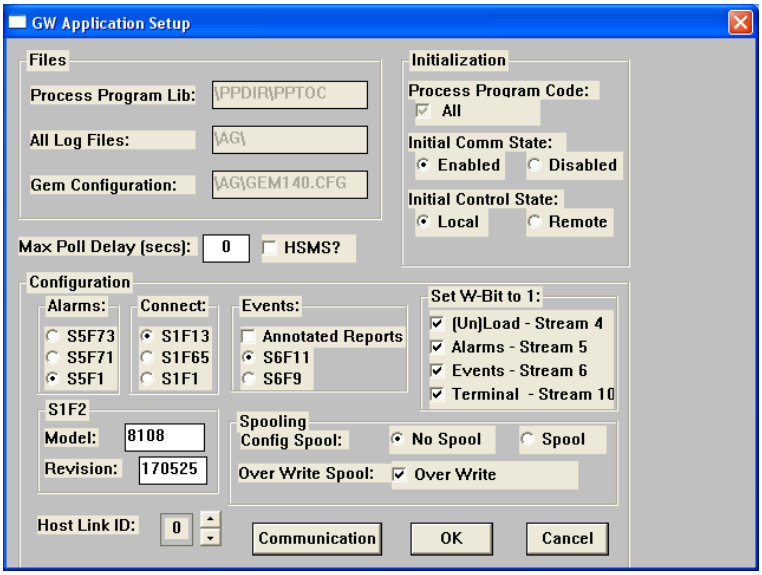
If the recipes indicate zero flow, but the hardware has NOT changed, double check the MFC types under [UTILITIES] [CONFIGURATION].

8. Special Instructions for using GEM/SECS and HSMS under Win10

GEM/SECS and HSMS are optional and a license can be purchased through the local Sales representative.

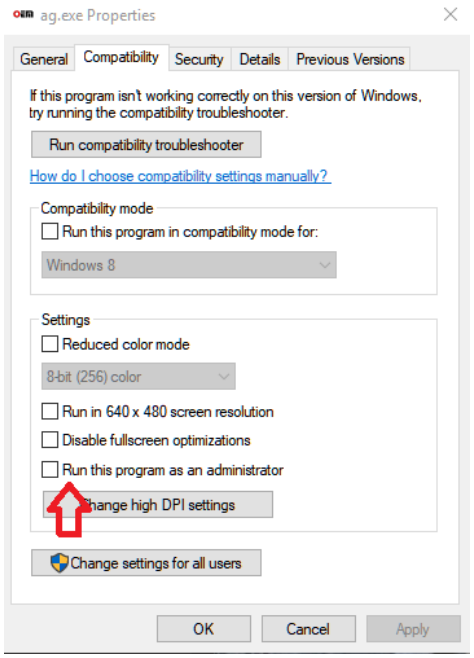
If purchased with the upgrade, the new GUI controller should already be configured correctly.

Switching between SECS & HSMS can be achieved by setting the check mark in the [LOG][GEM SETUP] screen



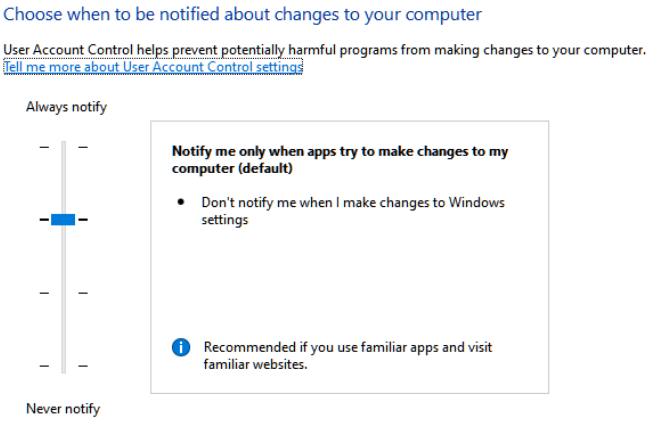
For SECS and HSMS to work correctly under Windows® 10 follow these steps:

- [EXIT] the GUI application to Windows Desktop
- Use File Explorer to navigate to C:\AG
- Locate the ***AG.EXE*** file:
  - Right click on the file name
  - Select 'Run as administrator' from the menu
    - If not listed, select **Properties**
    - On the **Compatibility** tab set the option 'Run this program as an administrator'



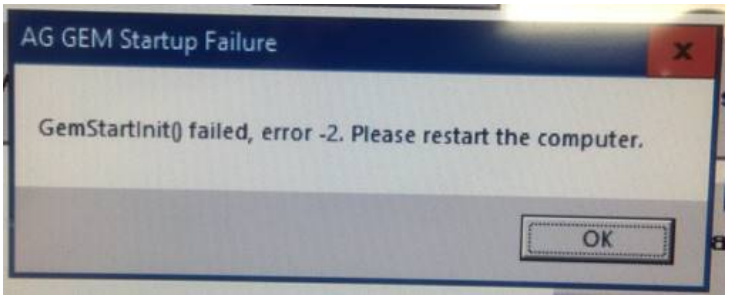
- Repeat this process for ***all*** *.EXE programs in the following directories:
  - C:\AG
  - C:\AG\SDR140
  - C:\AG\SDR170

- Click [Start], select the Windows button on the keyboard
  - Enter "**UAC**" and open the **User Account Control Settings** dialog
  - Set the slider to the bottom '**Never Notify**'
  - [OK] to exit

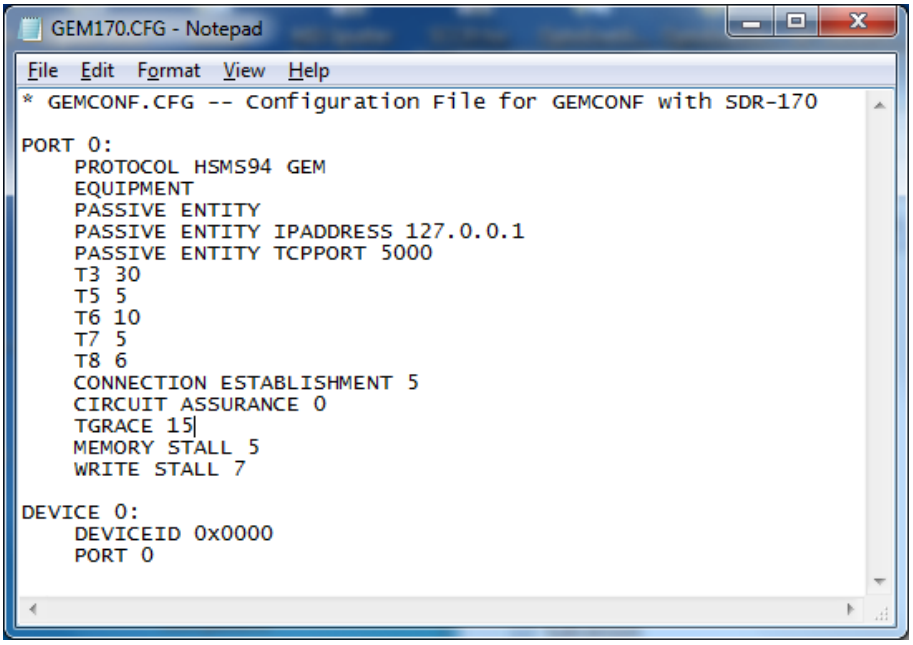


9. Troubleshooting

If upon booting, the following error occurs:



- [EXIT] the GUI application to Windows Desktop
- Use File Explorer to navigate to C:\AG
- Use NOTEPAD or WORDPAD to open the file '**GEM170.CFG**'
  - This is the HSMS configuration file
  - The IPADRESS must be 127.0.0.1 as shown below



- Ensure that the file is saved as a CFG and ***not*** as a TXT file when editing is completed

10. Special Notes: Recipes and Gas Flows

Recipes are stored as binary files and therefore cannot be easily displayed or edited as text documents.

When running in LOCAL mode, they can be simply copied from the backup media to the correct directory on the new Win10 GUI and are immediately available to the system.

WARNING: If the gas panel under [UTILITIES] [CONFIGURATION] on the new system does not match the old system, the Gas Flows shown under [RECIPE] will all be zero and the Heatpulse will indicate an alarm if an attempt is made to run this recipe.

This is a safety feature to prevent recipes created on gas panel hardware from one machine being run on different hardware on a second machine, which could potentially result in toxic gases being mixed or released. Worst case, product could be damaged due to the incorrect gas being used for processing.

If the recipe gas flows indicate zero, double check the gas line configuration under [UTILITIES] [CONFIGURATION] is correct.

This is not the same as the Gas Name stored under [SETUP]. The Gas Name can be different.

For example, the following is legal and will run:

[UTILITIES] [CONFIGURATION]	Line 4 MFC O2
[SETUP] {old GUI}	Line 4 Name O2
[SETUP] {new GUI}	Line 4 Name loO2

The following will display zero Gas Flow and not run:

[UTILITIES] [CONFIGURATION] {old GUI}	Line 3 MFC NH3
[UTILITIES] [CONFIGURATION] {new GUI}	Line 3 MFC LoO2
[SETUP]	Line 3 Name <does not matter>

11. Special Notes: Recipes for REMOTE operation

When running in REMOTE mode, the Host can access a special file that provides information about the recipes available on the machine and their location (directory).

This file is called PPTOC and is found in the directory C:\PPDIR

When upgrading to a new GUI, PPTOC will be empty (and may not exist at all).

The file is created/updated each time a recipe is saved or deleted using the GUI main application [RECIPE] [SAVE]

The contents of the file can be examined by selecting [LOG] [GEM/SECS] [RECIPE UPLOAD].

The window that opens displays all recipes known to the system and hence accessible to the host. If a recipe is not listed in the file, the host cannot automatically find it on the Heatpulse hard disk.

For this reason, when copying recipes from the backup media to the new GUI, it is especially important to open each recipe that will be needed by the host and re-save it back to the hard drive (overwrite) under [RECIPE]. This process will populate the PPTOC file.