



StarFire 995 Software Manual

LASER WELDING

Nd:YAG AND FIBER SYSTEMS

HARNESSING THE POWER OF HOT LIGHT™

If you have additional questions about your device or would like to provide feedback, a testimonial or present your applications results, please reach out — we’d love to hear from you!

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TABLE OF CONTENTS

I. Introduction 5

 Overview of the System 5

 Intended Use 5

 Operator Responsibility 5

 Software Operation Overview 6

 General Workflow. 6

II. Main Interface Layout 7

III. Laser Screen 8

 Screen Purpose 8

 Preset Actions 9

Preset Favorites10

 Theme Selection11

 Laser ON/OFF14

IV. Preset Management15

 Overview15

 Searching for Presets.15

 Material Organization16

 Previewing a Preset16

 Creating Presets17

 Editing Presets17

 Deleting Presets18

 Best Practices18

V. Gas & Maintenance19

 Screen Purpose19

 Assist Gas Settings.19

 Maintenance Schedule20

 Status Indicators20

VI. Startup Procedure22

 Startup Steps22

Table of Contents

VII. Access Screen 23

 Screen Purpose 23

 System Mode 23

 Available Modes 24

 Access Lock 24

 Change Password 25

 Show Password 25

 Typical Use 26

VIII. Sleep Screen 27

 Screen Purpose 27

 Screen Lock Settings 27

 Available Modes 27

 Timeout Settings 28

 Lock Screen 28

 Change PIN. 28

 Show PIN. 29

 Typical Use 29

IX. Alerts Screen 30

 Screen Purpose 30

 System Information 31

 Available Information 31

 Status Indicators 31

 Interlock Status 31

 Shutter Status 32

 Foot Switch Status 32

 Fault Management 32

 Additional Functions 32

I. Introduction

Overview of the System

The LaserStar StarFire software provides the operator interface for controlling welding parameters, selecting and managing weld presets, monitoring system readiness, adjusting gas and maintenance-related settings, and accessing protected system functions.

The software is designed for touchscreen operation and easy day-to-day welding setup, especially for jewelry and precision welding applications.

The operator interface is organized around key production functions:

- Weld parameter adjustments
- Preset selection and management
- Laser readiness and enable status
- Gas and maintenance controls
- Access-controlled settings
- System status monitoring
- System maintenance status
- Alarm and diagnostic review

Intended Use

The StarFire software is intended to operate and control the laser welding system. The software allows the operator to select welding presets, adjust welding parameters, monitor system status, and perform laser welding operations.

The system should be operated by personnel familiar with basic laser welding practices and the operation of laser welding equipment.

Operator Responsibility

The operator is responsible for:

- Selecting the appropriate weld preset.
- Verifying welding settings before operation.
- Monitoring system status and notifications.
- Saving preset changes when required.
- Following normal operating procedures.

Software Operation Overview

The software interface is designed to be simple and easy to use during daily welding operation.

The operator can:

- Load and manage presets
- Adjust welding parameters
- Access favorite presets
- Monitor machine status
- Access maintenance and gas functions
- Review notifications and alarms

The layout helps operators quickly load presets, adjust settings, and perform repeat welds more easily.

General Workflow

A typical operator workflow would be:

1. Power on the system.
2. Allow the software and hardware to initialize.
3. Confirm that no active faults are present and that all laser-ready conditions are valid.
4. Verify that required maintenance has been completed and the system status is safe.
5. Select the required weld preset.
6. Verify welding parameters.
7. Confirm camera view, illumination, and part alignment, if applicable.
8. Enable the laser only when ready to weld.
9. Perform the weld operation.
10. Monitor system status and alarms during operation.
11. Shut down the system or return it to a safe state when finished.

II. Main Interface Layout

The main navigation ribbon is located on the left side of the screen and provides access to the software's primary functions. Each icon opens a dedicated page for a specific area of operation.

The available sections include:

- **Laser (Weld Settings)** – Configure and adjust welding parameters.
- **Presets** – Load, save, and manage welding presets.
- **Gas (Gas Control & Maintenance)** – Monitor and control shielding gas functions. View maintenance schedules and service information.
- **Access (Access Control)** – Manage user access and permissions.
- **Sleep (Sleep Mode)** – Lock or place the system into sleep mode.
- **Alerts (Alerts and Notifications)** – Review system messages, warnings, and alarms.
- **ON / OFF** – Enable or disable the laser-ready state. When enabled, the viewing shutter opens and the laser may be fired using the foot pedal. When disabled, laser firing is prevented and the viewing shutter is closed.



Figure 1

Main Dashboard, with Navigation Ribbon on the Left.

III. Laser Screen

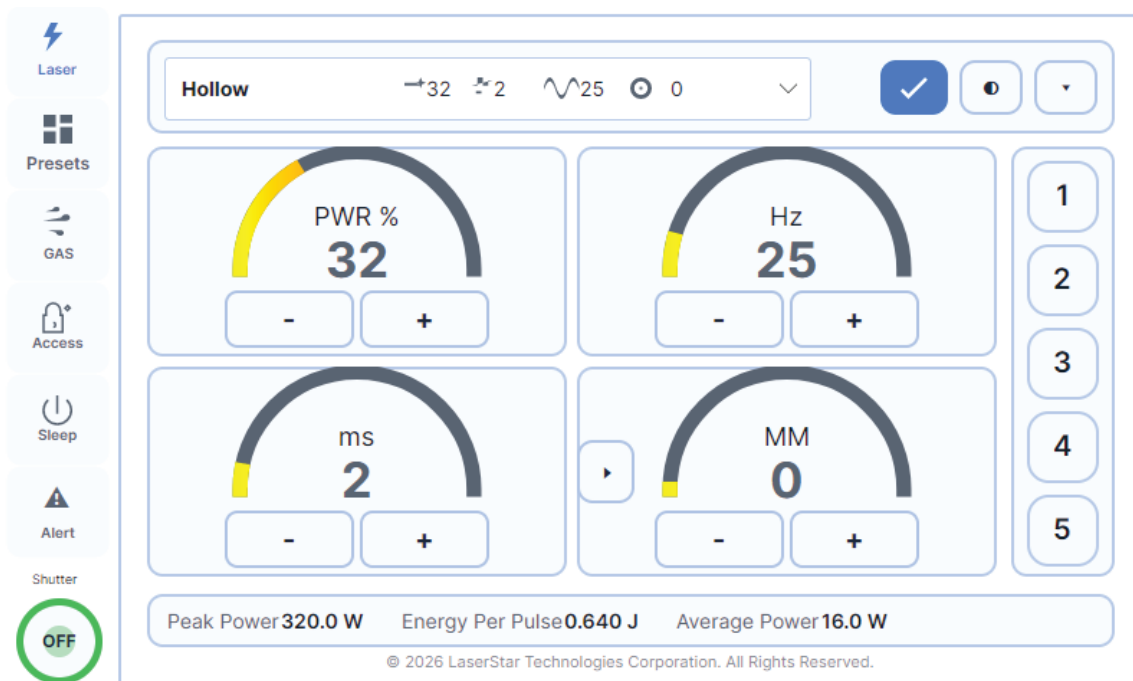


Figure 2

Main Dashboard / Laser Screen

Screen Purpose

The Main Laser screen is the primary operator page used during welding operation. It provides quick access to weld presets, welding parameter adjustments and favorite preset selection. The screen displays key welding values, including power, pulse width, frequency, and beam size settings, allowing the operator to monitor and adjust parameters. The quick-access buttons and the left navigation ribbon provide access to additional system functions and pages.

Operator Workflow

1. Select the required preset from the preset dropdown menu on the top and press the checkmark button to load the parameters. 
2. Review the displayed weld settings.
3. Make authorized parameter adjustments if required using the “-” and “+” buttons.
4. When adjusting beam size, press the “Play” button to apply the change.
5. Confirm the machine is ready before enabling laser output.

6. Press the “ON”/”OFF” shutter button to enable the laser and open the safety shutter. Make sure it say “ON” or it will not fire.
7. Press the foot pedal:
 - a. First stage activates the gas output.
 - b. Second stage activates the laser output.
8. The laser will only fire if all safety interlocks are satisfied and the system is in the Laser ON state.

Play Button

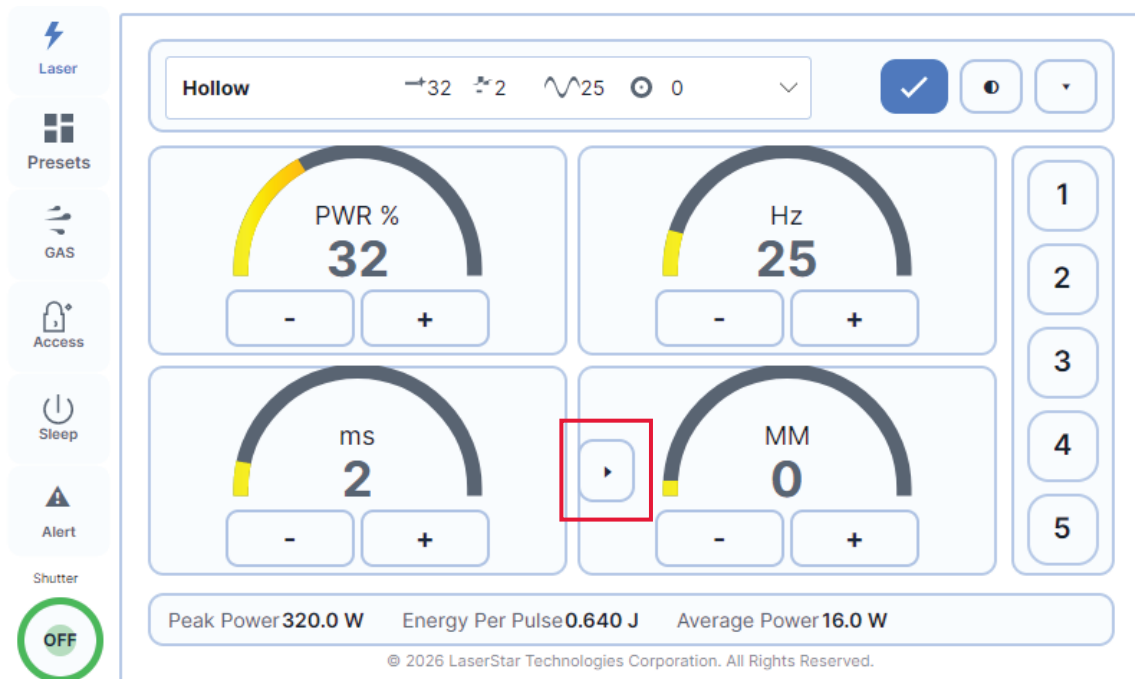


Figure 3

Play Button Location

Preset Actions

Preset Actions – After selecting a preset, the operator can perform several preset management functions using the **Preset Actions** menu. The menu can be accessed by pressing the **Preset Actions** button (the down arrow on the top right) and selecting the desired action from the list.

Available actions include:

Save Active Preset – Save changes to the currently loaded preset.

Save Active Preset As... – Save the current settings as a new preset.

Save All – Save all modified presets.

Save As Favorite – Assign the active preset to one of the numbered **Preset Favorites** buttons for quick recall. Select a favorite location (1–5) to store the preset.

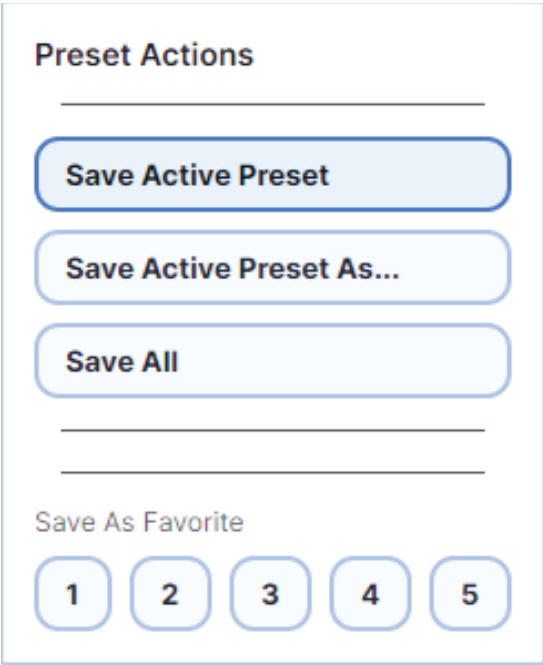


Figure 4
Save as Favorite

Preset Favorites

Preset Favorites – Click one of the numbered Preset Favorites buttons on the right side of the screen to quickly recall a saved favorite preset. This allows commonly used welding settings to be loaded with a single touch.



Figure 5
Main Dashboard / Laser Screen

Theme Selection

Theme Selection – Press the **Theme** button to change the appearance of the user interface.

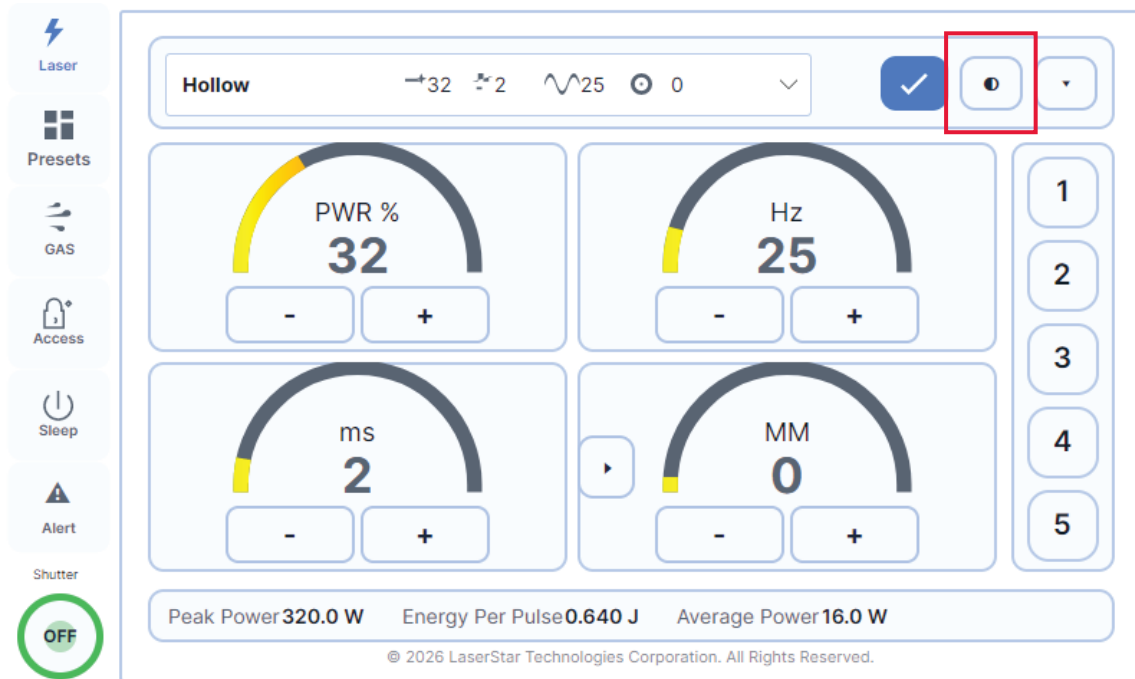


Figure 6
Theme Button Location

The following themes are available:

- **Day Classic** – Standard light theme for daytime operation.
- **Day Vivid** – Bright, high-contrast light theme.
- **Night Classic** – Standard dark theme for reduced screen brightness.
- **Night Soft** – Dark theme with softer colors for comfortable viewing in low-light environments.



Figure 7
Day Classic

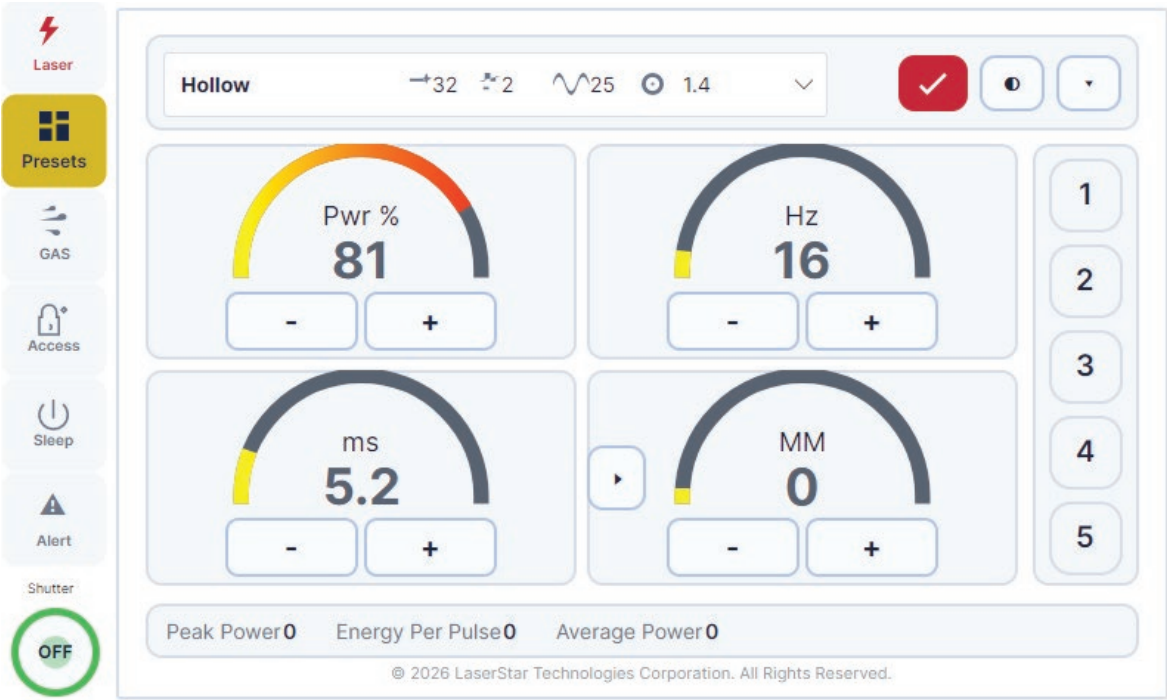


Figure 8
Day Vivid

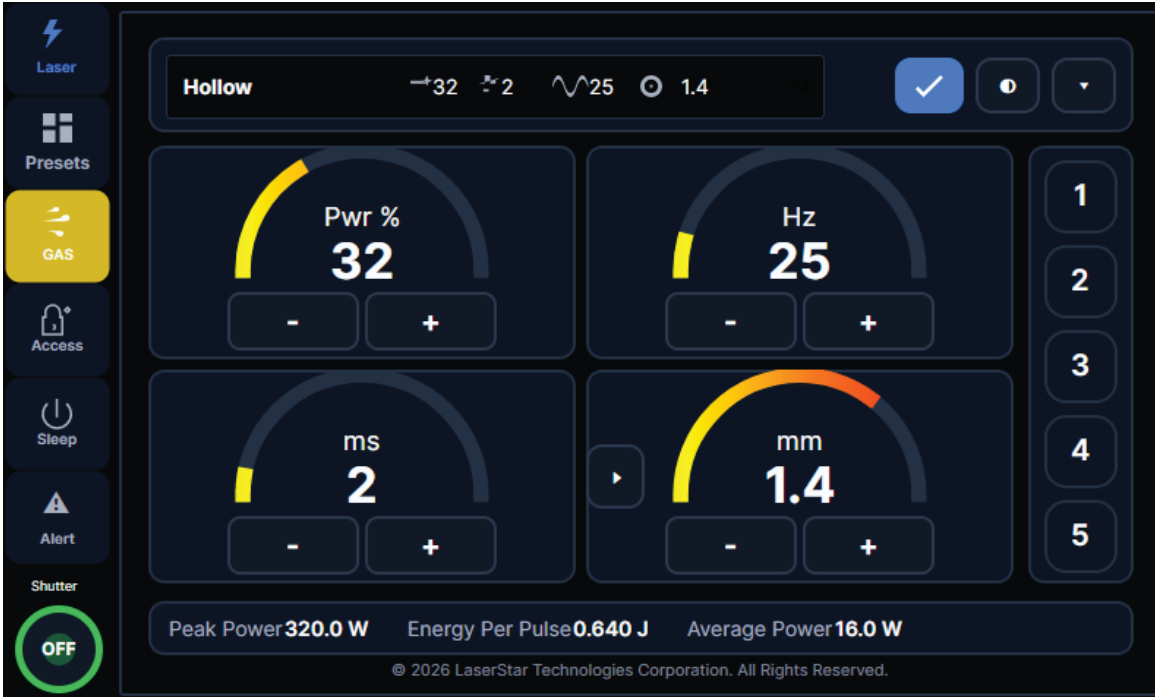


Figure 9
Night Classic

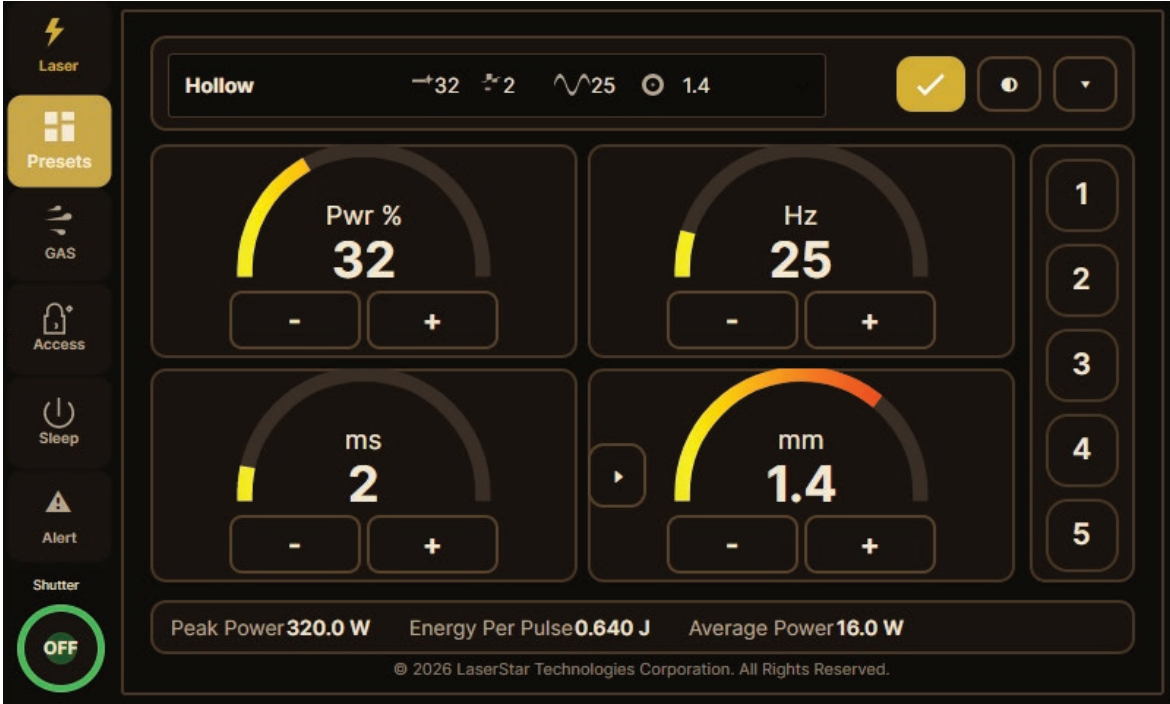


Figure 10
Night Soft

Laser ON/OFF

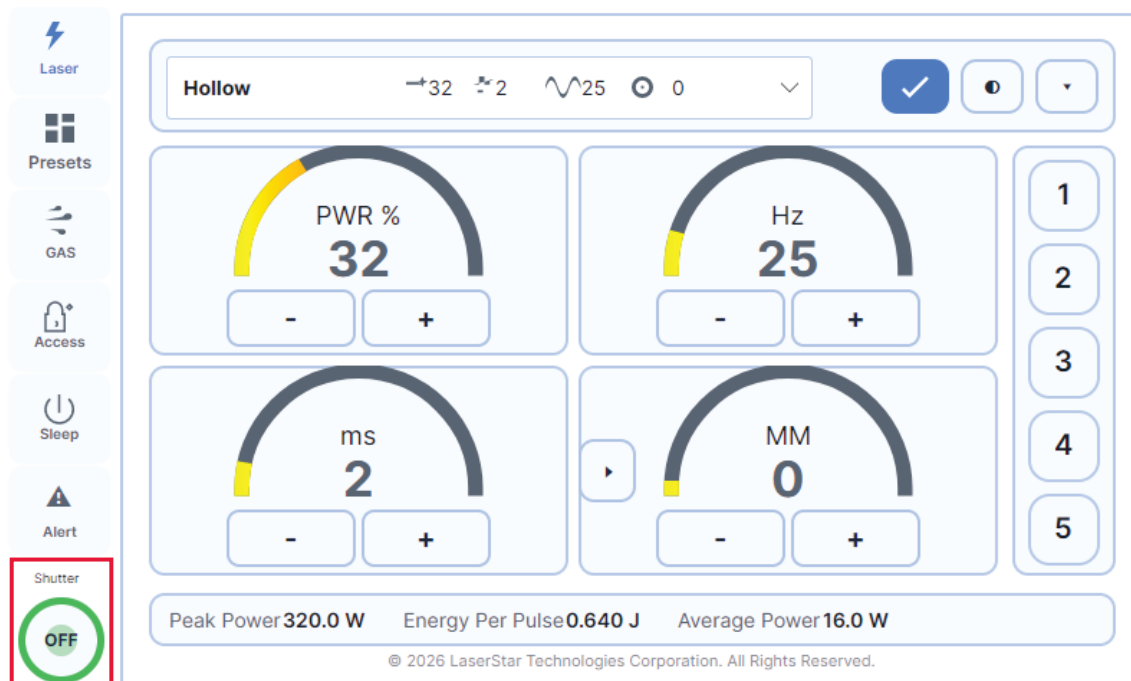


Figure 11
Laser On/Off

The **Laser ON/OFF** control indicates and controls whether the system is in a laser-ready state. When enabled, the system permits laser firing through the foot pedal and opens the viewing shutters. When disabled, laser firing is prevented and the viewing shutters are closed.

Operator Notes

- Enable the laser only when ready to perform a welding operation.
- Do not enable the laser during setup or part positioning unless required by an approved procedure.
- When the laser is enabled, pressing the foot pedal will initiate laser firing according to the active welding settings.
- If the **Laser ON/OFF** control is unavailable, review the Alerts page and verify that all safety interlocks and system conditions have been satisfied.

IV. Preset Management

Overview

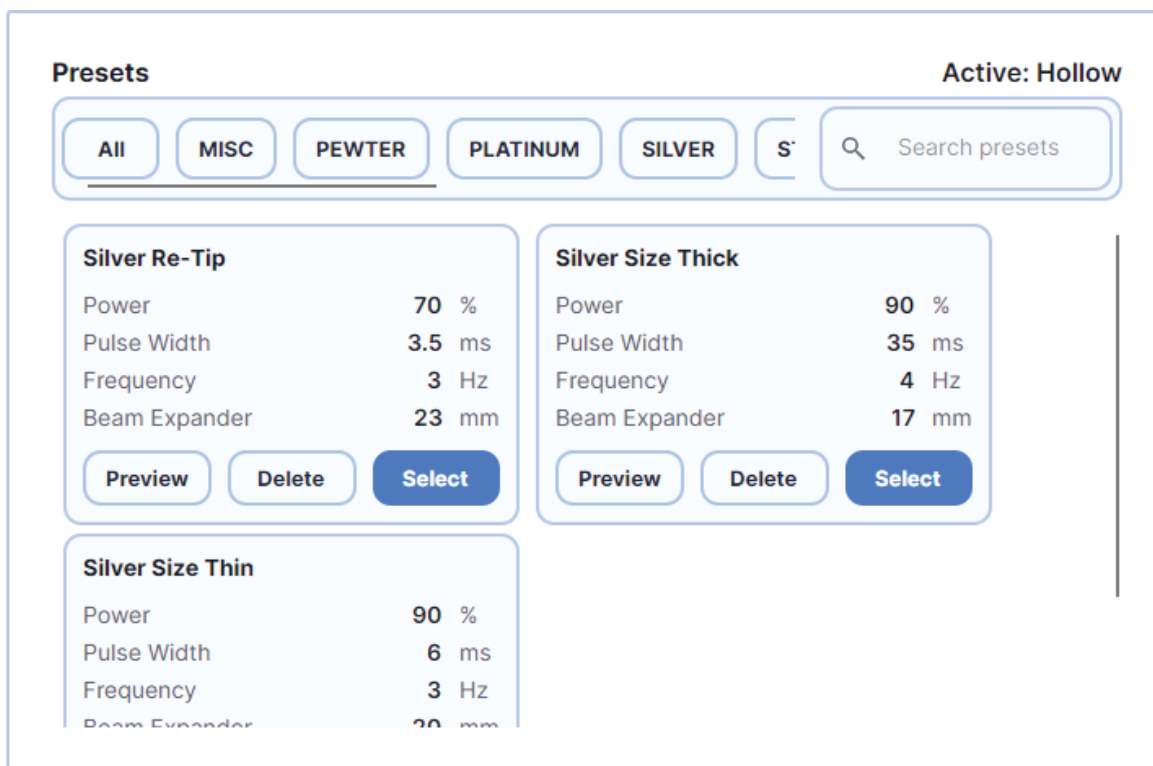


Figure 12

Laser On/Off

The Preset Library screen is used to search, organize, preview, modify, and delete stored welding presets.

Searching for Presets

Operator Workflow

1. Open the **Presets Library**.
2. Select the **Search** field.
3. Enter the preset name or the first few letters of the preset in the search box.
4. Review matching presets.

Material Organization

Presets are organized by material type to help operators locate validated welding settings efficiently.

Examples may include material families such as white and yellow gold, silver, or other application-specific materials.

Previewing a Preset



The screenshot displays a software window titled "PRESET PREVIEW". It contains the following fields and values:

- Name:** Hollow2
- Power:** 32 %
- Frequency:** 25 Hz
- Pulse Width:** 2 ms
- Beam Expander:** 1.4 mm
- Material:** MISC
- Notes:** A large empty text area for additional information.

At the bottom of the window, the file path `C:\TFS\StarFire\A77\bin\Debug\net8.0\Presets\Hollow.json` is shown, along with "Close" and "Save" buttons.

Figure 13

Preset Preview Screen

Screen Purpose

The **Preview** function allows the operator to review preset details before loading the preset. It can also be used to edit the preset description and manage material assignments.

The preset name can be changed by placing the cursor in the **Name** field and entering a new name.

The **Material** field can be modified in the same way. Presets are organized by material type, and a new material can be created simply by entering a new name in the Material field. A preset can be moved to a different material group by changing its assigned material name.

Creating Presets

Presets may be created using the **Save As** function from the main **Laser screen**.

Operator Workflow

- Set the required weld parameters.
- Confirm parameter values with a test weld if required.
- Select **Save As**.
- Enter the preset name and material information if available.
- Add notes describing the intended use.
- Save the preset.
- Confirm the new preset appears in the Preset Library.

Editing Presets

Preset welding parameter changes must be made from the **Laser** screen.

Operator Workflow

1. Select the desired preset.
2. Adjust the welding parameters using the **+** and **–** buttons.
3. Review all parameter values to ensure they are correct.
4. Select **Save** to update the current preset.
5. Verify that the updated preset information has been saved correctly.

Deleting Presets

The Preset Library screen includes a delete function.

Operator Workflow

1. In Presets Library.
2. Search or browse to the preset.
3. Press Delete only when certain the preset is no longer required.
4. Confirm deletion if prompted.

CAUTION — Preset Deletion

Deleted presets may not be recoverable unless a backup exists.

Best Practices

- Use simple preset names that are easy to recognize.
- Organize presets by material type.
- Add notes for special settings or applications.
- Preview presets before welding.
- Save changes carefully to avoid overwriting good settings.

V. Gas & Maintenance

Assist Gas Settings				
PreGas	0	ms		
PostGas	0	ms	<button>Apply</button>	

Maintenance Schedule				
	Status	Last Changed	Due In	Action
Protective Disk	Due	06/17/2026 01:05 PM	Due now	<button>Reset</button>
Clean Chamber	OK	06/17/2026 01:05 PM	17 days	<button>Reset</button>
Air Filters	OK	06/17/2026 01:05 PM	77 days	<button>Reset</button>

Figure 14

Gas and Maintenance Screen

Screen Purpose

The **Gas and Maintenance** screen allows the operator to configure assist gas timing and monitor scheduled maintenance items. It provides visibility into maintenance status and allows maintenance counters to be reset after required maintenance has been performed.

The screen contains two sections:

- **Assist Gas Settings** – Configure PreGas and PostGas timing.
- **Maintenance Schedule** – View maintenance status and service intervals.

Assist Gas Settings

Assist Gas Settings control the timing of shielding gas operation during the welding cycle.

- **PreGas** – Time the gas flows before laser firing begins.
- **PostGas** – Time the gas continues flowing after laser firing ends.

Values are entered in milliseconds (ms).

Operator Workflow

1. Navigate to the **Gas** screen.
2. Enter the desired **PreGas** value.
3. Enter the desired **PostGas** value.
4. Press **Apply** to save the settings.
5. Verify the settings are displayed correctly.

Maintenance Schedule

The Maintenance Schedule section provides a summary of maintenance items and their current status.

The table displays:

- **Status** – Current maintenance condition.
- **Last Changed** – Date and time of the last maintenance reset.
- **Due In** – Remaining time until maintenance is due.
- **Action** – Reset maintenance tracking after maintenance has been completed.

Status Indicators

- **OK** – Maintenance item is within its scheduled interval.
- **Due** – Maintenance is due and should be reviewed according to the system maintenance procedures.

Operator Workflow

1. Navigate to the Gas screen.
2. Review the maintenance status of each item.
3. If a maintenance item shows Due, perform the required maintenance according to the applicable maintenance procedures.
4. After maintenance has been completed, select the Reset button for the corresponding item.
5. Verify the status returns to OK and the maintenance interval is updated.

Operator Notes

- Maintenance counters should only be reset after maintenance has been completed. Resetting counters without performing maintenance may result in missed service intervals.
- Review maintenance status regularly as part of normal system operation.
- Refer to the system maintenance documentation for maintenance procedures and replacement instructions.

VI. Startup Procedure

The startup procedure prepares the StarFire 995 software for normal welding operation.

Startup Steps

1. Turn on the system.
2. Wait for the software to start automatically.
3. Allow the software a few moments to initialize and establish communication with the system.
4. During startup, the software automatically loads the available preset library and selects the first preset.
5. If needed, choose a different preset from the **Preset Library**.

VII. Access Screen

Access Mode Settings

System Mode

☐ Production(View Only) ☐ Setup(Modify) ☒ Full

Access Lock

☐ Require password for access changes **Lock** Password **Unlock**

Change Password

Old ☐ Show

New

Confirm **Apply**

OFF

Figure 15
Access Screen

Screen Purpose

The Access screen is used to control operator access levels, manage password protection, and change the system access password.

This screen allows administrators or authorized users to restrict parameter modifications while still permitting normal system operation.

The screen contains three sections:

- **System Mode** – Select the desired operating mode.
- **Access Lock** – Enable or disable laser readiness password protection.
- **Change Password** – Update the access password.

System Mode

System Mode determines the level of access available to the operator.

Available Modes

Production (View Only)

- Welding parameters and settings can be viewed.
- Parameter modifications are not permitted.

Setup (Modify)

- Welding parameters may be adjusted.
- Intended for setup and process development activities.

Full

- Provides full access to available software functions and settings.

Operator Workflow

1. Navigate to the Access screen.
2. Select the desired system mode.
3. Verify the selected mode is active.
4. Continue normal operation.

Operator Notes

- Select the access level appropriate for the task being performed.
- Production mode helps prevent unintended parameter changes during normal operation.

Access Lock

Access Lock allows password protection to be enabled for access and mode changes.

When enabled, authorized users must enter the correct password before protected settings can be modified.

Operator Workflow

1. Navigate to the Access screen.
2. Enable “Require Password for Access Changes” to restrict access to protected settings.
3. Select Lock to activate the access lock.
4. To unlock protected functions, enter the password.
5. Select Unlock.

Operator Notes

- Access Lock helps prevent unauthorized changes to system settings.
- Password protection should be enabled according to company procedures.

Change Password

The **Change Password** section allows authorized users to update the system access password.

Operator Workflow

1. Navigate to the Access screen.
2. Enter the current password in the Old field.
3. Enter the new password in the New field.
4. Re-enter the new password in the Confirm field.
5. Select Apply.
6. Verify the password change was accepted.

Show Password

The **Show** checkbox displays password characters while entering or reviewing password information.

Operator Notes

- Store passwords according to company procedures.
- If passwords are changed, ensure authorized personnel are informed.
- Use passwords that comply with site security requirements.

Typical Use

A common workflow is:

1. Select **Setup** or **Full** mode when parameter modifications are required.
2. Perform the necessary configuration changes.
3. Return the system to **Production (View Only)** mode when setup is complete.
4. Enable **Access Lock** if password protection is required.

VIII. Sleep Screen

The screenshot displays the 'Sleep Screen' interface. On the left is a vertical sidebar with icons for Laser, Presets, GAS, Access, Sleep (highlighted), Alert, and Shutter. The main area is titled 'Screen Lock Settings' and contains two sections. The 'Screen Lock' section has 'Mode' with radio buttons for Off (selected), Auto Lock, and Auto Lock + PIN, and a 'Save' button. Below it, 'Timeout' has radio buttons for 30s (selected), 1m, 5m, and 10m, and a 'Lock Screen' button. The 'Change PIN' section has input fields for 'Old', 'New', and 'Confirm', a 'Show' checkbox, and an 'Apply' button. At the bottom left of the sidebar is a green circular button labeled 'OFF'.

Figure 16
Sleep Screen

Screen Purpose

The Sleep screen is used to configure automatic screen locking, manually lock the user interface, and manage PIN settings used for screen access and unlocking.

The screen contains two sections:

- **Screen Lock Settings** – Configure automatic screen locking behavior.
- **Change PIN** – Create or modify the PIN used for screen unlocking.

Screen Lock Settings

Screen Lock Settings determine how the software behaves when the system is inactive.

Available Modes

- **Off** – Screen locking is disabled.
- **Auto Lock** – The screen automatically locks after the selected timeout period.
- **Auto Lock + PIN** – The screen automatically locks after the selected timeout period and requires a PIN to unlock.

Timeout Settings

The following inactivity timeout periods are available:

- 30 Seconds
- 1 Minute
- 5 Minutes
- 10 Minutes

Operator Workflow

1. Navigate to the **Sleep** screen.
2. Select the desired screen lock mode.
3. Select the desired timeout period.
4. Press **Save** to apply the settings.
5. Verify the selected settings are active.

Lock Screen

The **Lock Screen** button immediately places the software into lock mode regardless of the selected timeout setting.

Operator Workflow

1. Navigate to the **Sleep** screen.
2. Press **Lock Screen**.
3. The screen locks immediately.
4. Unlock the screen as required to resume operation.

Change PIN

The Change PIN section allows authorized users to create or modify the PIN used for screen unlocking.

Operator Workflow

1. Navigate to the **Sleep** screen.
2. Enter the current PIN in the **Old** field.
3. Enter the new PIN in the **New** field.

4. Re-enter the new PIN in the **Confirm** field.
5. Press **Apply**.
6. Verify the PIN change was accepted.

Show PIN

Select the Show checkbox to display the PIN while entering or reviewing the value.

Operator Notes

- The factory default PIN is **1234**. After changing the PIN, the customer is responsible for documenting and securely retaining the new PIN. LaserStar cannot recover customer-defined PIN values.

Typical Use

1. Select **Auto Lock** or **Auto Lock + PIN**.
2. Select the desired inactivity timeout.
3. Press **Save**.
4. Use **Lock Screen** when leaving the workstation unattended.
5. Unlock the screen to resume operation.

IX. Alerts Screen

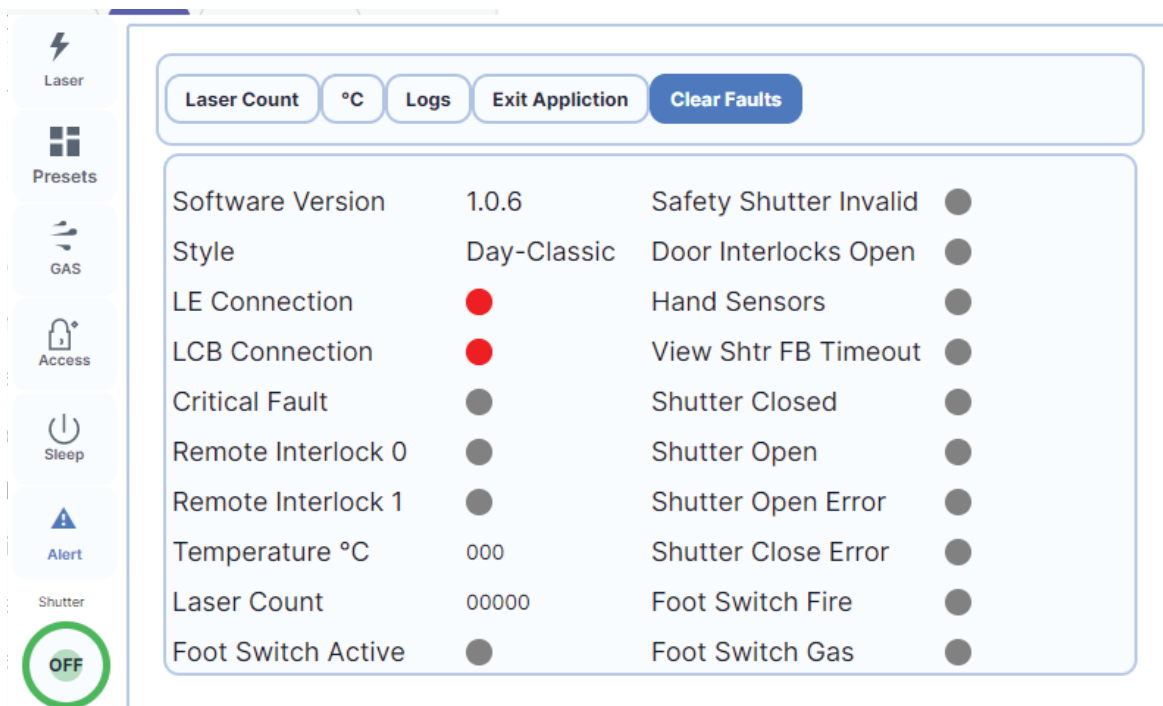


Figure 17

Alerts Screen

Screen Purpose

The Alerts screen provides system status information, fault indications, interlock conditions, connection status, and diagnostic information used to verify system readiness.

This screen allows the operator to monitor system conditions and identify issues that may prevent normal operation.

The screen contains:

- System information
- Communication status
- Interlock status
- Shutter status
- Foot switch status
- Temperature monitoring
- Laser pulse counter
- Fault reset functions

System Information

The top portion of the screen displays general system information.

Available Information

- **Software Version** – Displays the currently installed software version.
- **Style** – Displays the currently selected user interface theme.
- **Communication Status** – The Alerts screen displays communication status between major system components.
- **LE Connection** – Indicates communication status with the Laser Engine.
- **LCB Connection** – Indicates communication status with the Laser Control Board.

Status Indicators

- **Gray** – Status inactive or not detected.
- **Red** – Communication fault or connection unavailable.
- **Green** – Communication established and operating normally.

Interlock Status

The Alerts screen displays the status of safety-related inputs and interlocks.

Available Indicators

- Remote Interlock 0
- Remote Interlock 1
- Door Interlocks Open
- Hand Sensors
- Safety Shutter Invalid

These indicators provide information about conditions that may prevent laser operation.

Operator Notes

- Active interlock conditions may prevent the laser from entering a ready state.
- Verify all required safety conditions before attempting to enable the laser.

Shutter Status

The Alerts screen displays the current status of the viewing shutter system.

Available Indicators

- Shutter Closed
- Shutter Open
- Shutter Open Error
- Shutter Close Error
- View Shutter Feedback Timeout

Foot Switch Status

The Alerts screen displays foot pedal input activity.

Available Indicators

Foot Switch Fire – Indicates laser firing pedal status.

Foot Switch Gas – Indicates gas activation pedal status.

Foot Switch Active – Indicates foot switch activity detected by the system.

Fault Management

Clear Faults – The Clear Faults button is used to clear active fault indications after the fault condition has been corrected.

Operator Workflow

1. Navigate to the **Alerts** screen.
2. Review active fault or status indicators.
3. Correct the underlying issue if required.
4. Press **Clear Faults**.
5. Verify the fault indication has cleared.

Additional Functions

The Alerts screen provides access to several diagnostic functions:

°C – Displays temperature-related information.

Logs – Opens the system event and diagnostic log.

Exit Application – Closes the software application.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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