SEAMVISION™

INSTRUCTION MANUAL

This instruction manual is intended to be a guide when operating the SeamVision. To ensure optimal performance from your welder, please follow the recommendations and specifications precisely.

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1.0 Intended Use

The Seam Vision system is an affordable and accurate solution for conventional and automation systems that require non-contact temperature measurements. It is a real time monitoring system that immediately identifies thermal problems that would otherwise go undetected. Its built-in logic makes it ideal for product and process monitoring in quality and reliability assurance programs.

The Seamvision technology is used in the automotive, semiconductor/electronics, and food and pharmaceutical industries for inspection and has been adapted and developed by Miller Weldmaster for the industrial fabrics and technical textile industries. The Seamvision System works by precisely measuring the intensity of the flow of photons from the fabric through the atmosphere to the optics of the detector to actively monitor a welded seam in real-time as the process occurs. The Seam Vision system then provides real time data back to the operator for the refinement to maintain consistent seams. The Seamvision System will provide alarm information for post production testing.

The manufacturer does not approve of:

- Any other uses for these machines.
- Unauthorized modification of the machines.

Only a properly-trained technician may operate and/or perform any routine maintenance or repairs to the machines.

NOTE: The manufacturer will not be held liable for any damage or injuries occurring from any inappropriate use of this machine.

2.0 Principals of Heat Sealing

Heating System
The Heat required for the welding operation is created electrically by hot air or hot wedge. Both methods apply heat to the material to be welded.

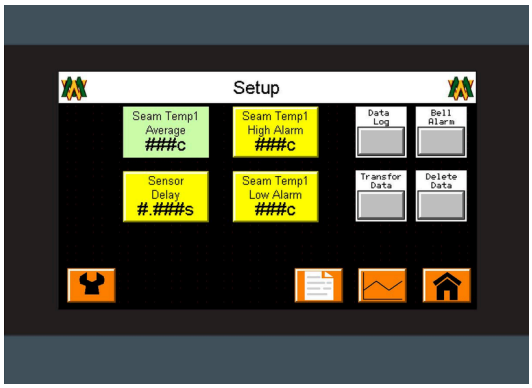
Speed
The Speed of the Weld Rollers determines the amount of time the heat is applied to the material being welded. The slower the speed setting, the more the material will be heated. The faster the speed setting, the less the material will be heated. To achieve the best weld, a minimal amount of heat should be applied to the material while still achieving a full weld. Too much heat will cause distortion of the material; while not enough heat will prevent the material from welding.

Pressure
The pressure of the weld roller is the final step when creating a weld. The pressure of the weld roller compresses the heated material together completing the welding process.

Summary
When heat sealing, the correct combination of heat, speed, and pressure will allow you to achieve a properly welded seam.

ALWAYS PERFORM A TEST WELD!

3.0 Definition of Controls



Setup

Setup

Seam Temp Average: This shows the average temperature that the Seam Vision is capturing.

Sensor Delay: Once the nozzle or wedge swings into position, the Sensor Delay will delay the Seam Temp Average reading until set point is reached. Sensor Delay will be adjusted by operator to desired setting.

Seam Temp High Alarm: This will allow you to create a window that if the Seam Temp Average rises above desired setting will trigger the Light Stack signal and/or Bell Alarm. The High Alarm will be adjusted by operator to desired setting.

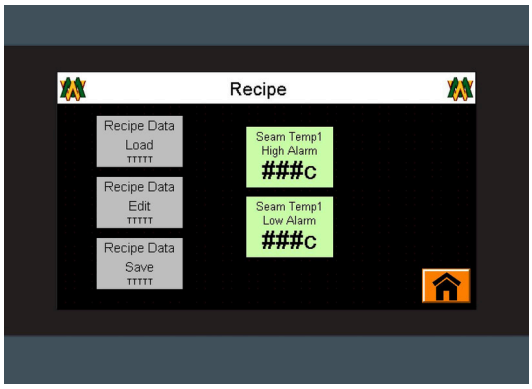
Seam Temp Low Alarm: This will allow you to create a window that if the Seam Temp Average falls below desired setting will trigger the Light Stack signal and/or Bell Alarm. The Low Alarm will be adjusted by operator to desired setting.

Data Log: This, when activated, will allow you to save any Seam Temp data.

Transfer Data: This will allow you to move any Seam Temp data collected to a thumb drive.

Bell Alarm: This will sound when Seam Temp Average falls below or rises above the desired alarm settings window.

Delete Data: This will allow you to get rid of any Seam Temp data collected on a thumb drive.



Recipe

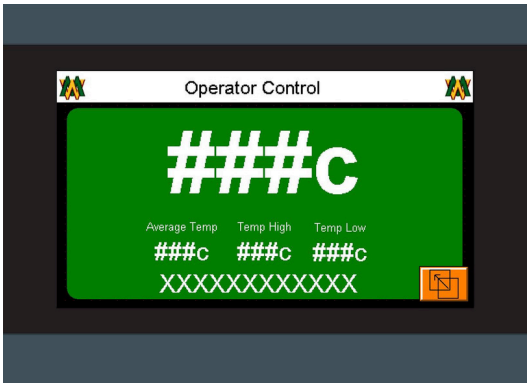
Recipe

Recipe Data Load: When using different material this will allow you to load different Seam Temp High/Low Alarm settings previously saved.

Recipe Data Edit: This will allow you to edit previously saved Seam Temp High/Low Alarm settings.

Recipe Data Save: This will allow you to save the current Seam Temp High/Low Alarm settings for different materials. You can save up to 10 products.

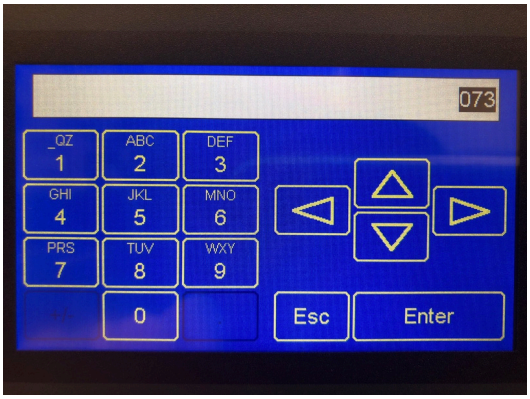
3.0 Definition of Controls



Operator Control

Operator Control

This is the home screen and will show your live temperature along with the Average Seam Temp, the Seam Temp High/Low Alarm settings, and the current Recipe Data selected. You can access the Setup screen as well using the orange icon in the bottom right corner.



This screen, when selected through the Sensor Delay, Seam Temp High Alarm, Seam Temp Low Alarm and the Sample Rate icons, will allow you to edit the desired settings for each feature.

Seam Temperature

Seam Temperature

The Seam Temperature line graph will show the Average Seam Temp in relation to how long the Sample Rate is set.

Sample Rate: This is used to increase or decrease the time for recording the Average Seam Temp.

3.0 Definition of Controls

Data Logging

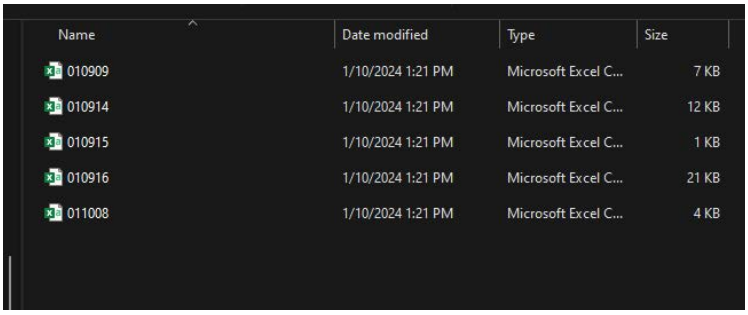
The SeamVision system includes a Data Log On/Off function that allows the operator to control when process data is recorded. This feature is intended to improve data clarity by ensuring that only relevant production data is captured.

Function Overview

The Data Log button enables or disables the recording of SeamVision data during machine operation. When logging is enabled, the system records weld data into time-stamped files. When disabled, no data is recorded.

Location

The Data Log control is accessible from the Setup Screen.
For improved usability, this control may also be available on the Main Screen, depending on machine configuration.



Operation

Locate the Data Log button on the screen.
Press the button to toggle between:
ON (Recording Enabled): System logs all SeamVision data.
OFF (Recording Disabled): System does not record data.
Confirm the button state visually (e.g., highlighted or indicated as active) before beginning operation.

Recommended Usage

Disable logging during machine setup, testing, or non-production adjustments to avoid unnecessary data files.
Enable logging when running production material to ensure accurate data tracking and traceability.

Notes

The system automatically organizes logged data into time-based folders (e.g., by hour).
File naming is generated by the control system and cannot be modified.

3.0 Definition of Controls

Data Log File Structure and Interpretation

The following example illustrates a typical SeamVision data log exported to a spreadsheet format. Each row represents a single recorded data point captured while the Data Log function is enabled.

Column Descriptions

Date / Time
Indicates when the data sample was recorded. Data is captured continuously while logging is active.

SeamTemp1_c
The instantaneous temperature reading from the SeamVision sensor (in °C).

SeamTemp1_c_Aver
The running average temperature over a short interval. This provides a smoothed value for process monitoring.

SeamTemp1_c_Low / SeamTemp1_c_High
The acceptable temperature range for the process. These limits are typically defined by the active recipe.

Temp1_Good
Status indicator:
1 = Temperature is within the acceptable range
0 = Temperature is outside the acceptable range

RecipeName
The active recipe at the time of recording. This defines machine settings and acceptable process limits.

User
The operator logged into the system during data collection.

Info
Additional job or product information entered by the operator (e.g., job name, material type, or dimensions).

WeldNumber
Identifies the weld cycle or part sequence. This value increments as new welds are performed.

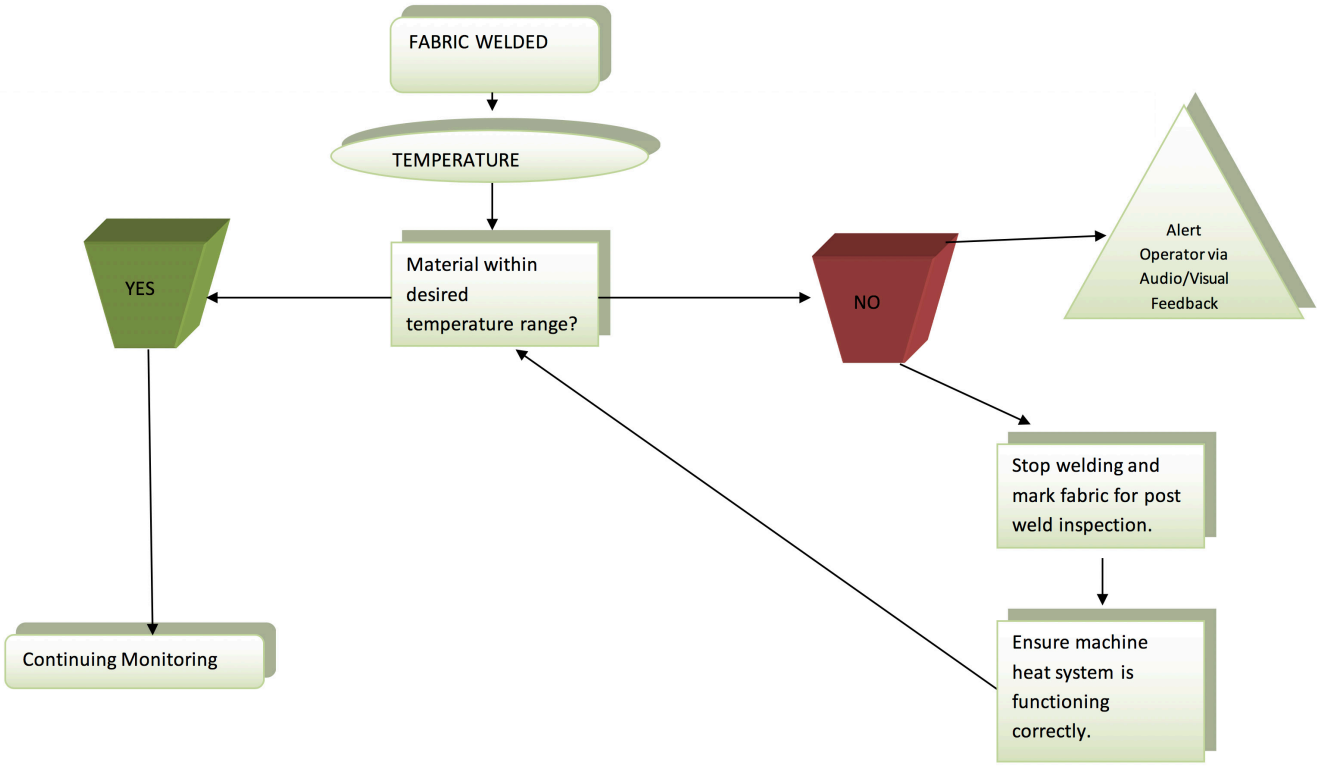
How to Read the Data
Data is recorded sequentially in time, allowing you to track temperature behavior throughout each weld.
Multiple rows may correspond to a single weld cycle, as data is sampled continuously.
Changes in the WeldNumber indicate the start of a new weld.
Consistent Temp1_Good = 1 values confirm the process stayed within acceptable limits.
Operator and job changes (e.g., “Andy” to “Bob”) help identify shifts in production or setup.

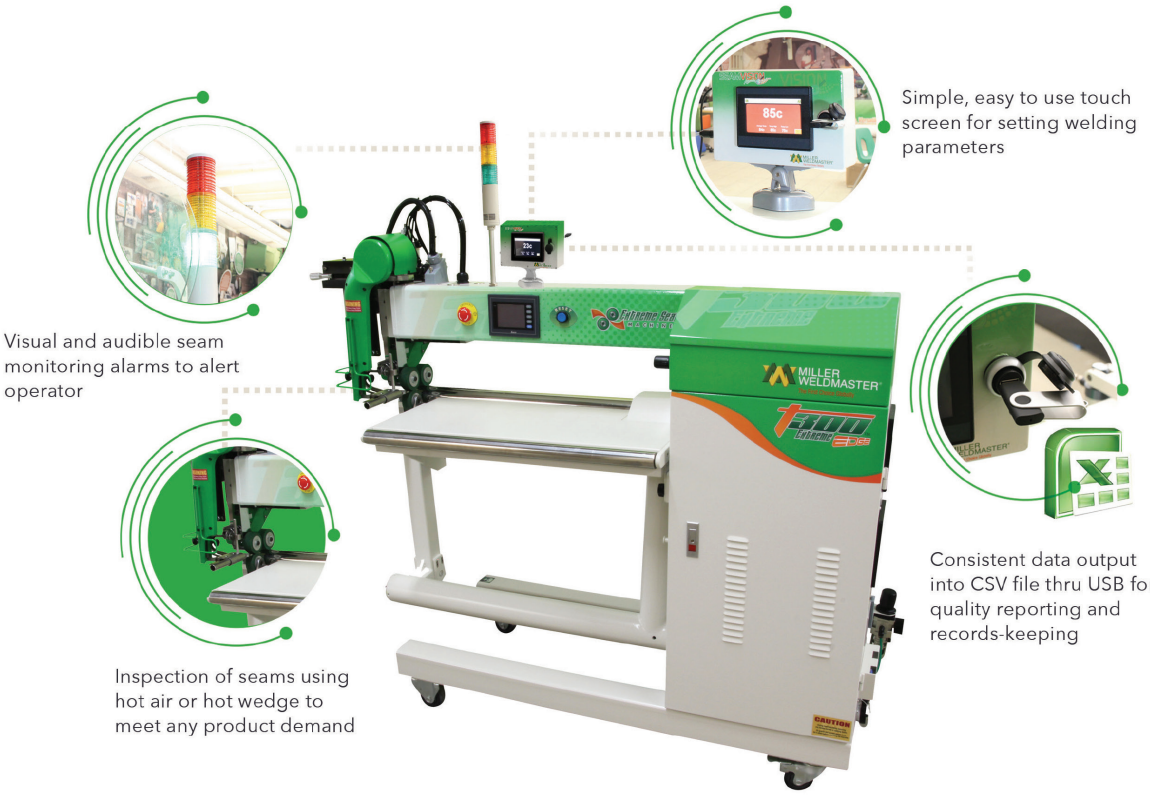
Best Practices
Review average temperature (SeamTemp1_c_Aver) for overall process stability.
Investigate any instances where Temp1_Good = 0, as this indicates a potential quality issue.
Use WeldNumber, User, and Info fields together to trace data back to specific parts or jobs.
Disable logging during setup to avoid cluttering reports with non-production data.

3.0 Definition of Controls

	A	B	C	D	E	F	G	H	I	J	K	L
1	Date	Time	SeamTemp1_c	SeamTemp1_c_Aver	SeamTemp1_c_Low	SeamTemp1_c_High	Temp1_Good	RecipeName	User	Info	WeldNumber	
2	1/9/2024	9:27:34	25	27	20	80	1	Recipe 01	Andy	123456789abcU9	1	
3	1/9/2024	9:27:35	26	27	20	80	1	Recipe 01	Andy	123456789abcU9	1	
4	1/9/2024	9:27:36	26	27	20	80	1	Recipe 01	Andy	123456789abcU9	1	
5	1/9/2024	9:27:37	27	27	20	80	1	Recipe 01	Andy	123456789abcU9	1	
6	1/9/2024	9:27:58	28	27	20	80	1	Recipe 01	Andy	123456789abcU9	2	
7	1/9/2024	9:27:59	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	2	
8	1/9/2024	9:28:00	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	2	
9	1/9/2024	9:28:01	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	2	
10	1/9/2024	9:28:02	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	2	
11	1/9/2024	9:28:09	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	3	
12	1/9/2024	9:28:10	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	3	
13	1/9/2024	9:28:11	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	3	
14	1/9/2024	9:28:21	29	28	20	80	1	Recipe 01	Andy	123456789abcU9	4	
15	1/9/2024	9:28:22	29	28	20	80	1	Recipe 01	Andy	123456789abcU9	4	
16	1/9/2024	9:28:23	29	28	20	80	1	Recipe 01	Andy	123456789abcU9	4	
17	1/9/2024	9:28:24	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	4	
18	1/9/2024	9:28:25	28	28	20	80	1	Recipe 01	Andy	123456789abcU9	4	
19	1/9/2024	9:33:34	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
20	1/9/2024	9:33:35	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
21	1/9/2024	9:33:36	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
22	1/9/2024	9:33:37	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
23	1/9/2024	9:33:38	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
24	1/9/2024	9:33:39	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
25	1/9/2024	9:33:40	28	27	20	80	1	Recipe 01	Bob	8 x 12	1	
26	1/9/2024	9:33:41	28	28	20	80	1	Recipe 01	Bob	8 x 12	1	
27	1/9/2024	9:33:42	28	28	20	80	1	Recipe 01	Bob	8 x 12	1	
28	1/9/2024	9:33:43	28	28	20	80	1	Recipe 01	Bob	8 x 12	1	
29	1/9/2024	9:33:48	27	28	20	80	1	Recipe 01	Bob	8 x 12	2	
30	1/9/2024	9:33:49	28	28	20	80	1	Recipe 01	Bob	8 x 12	2	
31	1/9/2024	9:33:50	29	28	20	80	1	Recipe 01	Bob	8 x 12	2	
32	1/9/2024	9:33:51	29	28	20	80	1	Recipe 01	Bob	8 x 12	2	
33	1/9/2024	9:33:52	29	28	20	80	1	Recipe 01	Bob	8 x 12	2	
34	1/9/2024	9:33:53	29	28	20	80	1	Recipe 01	Bob	8 x 12	2	
35	1/9/2024	9:33:54	26	28	20	80	1	Recipe 01	Bob	8 x 12	2	
36												

4.0 Machine Flow Chart

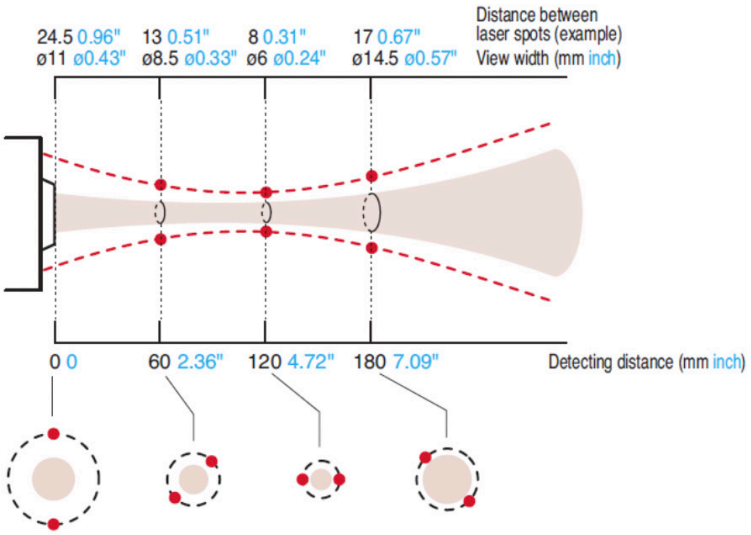


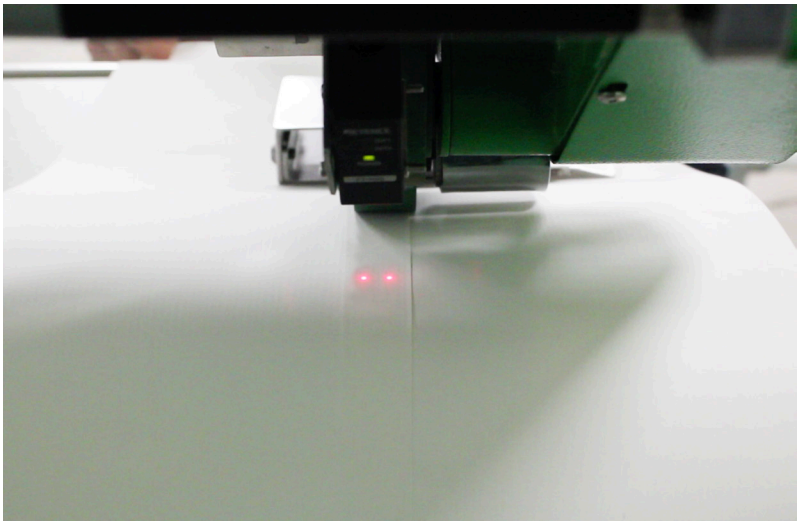


5.0 Maintenance

Sensor & Laser Positioning

The sensor measures the average temperature of a circular area within the two lasers. The slot on the provided mounting bracket will allow for adjustment of the size of the area to be measured. The lasers will rotate and their distance from one another will change as the sensor is moved closer and farther away from the surface to be measured, however the sensing area always remains a complete circle.





5.0 Maintenance

Electrical Circuits

1. When replacing parts and components, you must use the part or components of the same type as the original or equivalent to the original type. Original equipment replacement parts should be purchased through Miller Weldmaster and or a Miller Weldmaster authorize distributor.

2. To avoid damaging the control module, Display and Operating Panel, never plug or unplug the cables connecting the PLC, Display and Operating Panel while the power is on.

3. If there is any fault that cannot be removed, please immediately contact the service department at Miller Weldmaster.

NOTICE: By not properly maintaining the machine, the performance may be effected. Please contact Miller Weldmaster with any questions.

6.0 Transportation Specs and Storage

Storage

The manufacturer recommends that any time the machine is not in use, it must be protected from excess dust and moisture. The operator should familiarize themselves with the warning symbols on the machine to be alert to the potentially hazardous areas on the machine.

NOTE: The manufacturer will not be held liable for any damage or injuries occurring from any inappropriate use of this machine.

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