

INSTRUCTION MANUAL

J800 Weld Controller

INSTALLATION AND OPERATION

Janda Company, Inc.

J800 WELDING CONTROLLER

TO END USERS:

This Weld Controller may have been designed by the Original Equipment Manufacturer (OEM) using these Weld Controller Components. For support on this control, please contact the OEM as they implemented the design and may best understand the operation. If the OEM cannot be contacted, please contact Embedded Systems Consulting with the understanding that our support may be limited.

Janda Company, Inc.

Reserves the right to alter this manual without previous notice.

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1 GENERAL DESCRIPTION

The Weld Controller offers the reliability that results from its simple design. The Weld Controller is a compact, robust unit providing basic control for resistance welding. The LCD display provides a summary of the weld schedule at a glance. It also provides the user interface programming purposes. Programming is quick and simple, as is operation of the control. Installation is also easy. The Weld Controller has four mounting studs, two plug-in connector blocks, and an USB connector.

Principle features of the Weld Controller are:

- Operates with 24 volt DC supply
- Up to 16 Welding Transformers (Simultaneous or Cascade) on a single phase.
- Constant Current feedback
- Frequency auto detected as 60Hz/50Hz
- 16 total 24 VDC inputs and 24 VDC outputs plus WELD ON/OFF
- 1 to 99 schedules
- Chaining weld schedules, with or without wait
- Half Cycle welding
- Configurable for: Non-Repeat Spot, Repeat Spot, Roll-Spot Seam and Butt-Weld
- 4 programmable weld intervals – Upslope, Pulsation and Downslope
- 2-Stage Foot Switch
- Retraction function
- Weld Schedules & configuration transferable via USB Flash drive.
- Counter with configurable lock-out

The Weld Controller consists of the Timer combined with additional components – Firing Module, Power Supply and Contactors.

1.1 SPECIFICATIONS

Supply voltage:	24 VDC
Supply current:	<200 mA (no outputs on)
Synchronization signal:	12-37 VAC or 110-480VAC
Line frequency:	50 or 60 Hz (Auto Detected)
Number of combined AFIO digital Inputs/Outputs:	16
Input requirement:	24 VDC, < 10 mA
Digital output rating:	24 VDC, ≤ 500 mA
WELD OUT output:	5 kHz; 1:10 mark/space 24V
Size:	4.5" x 6.0" x 1.1" (1.9" including connectors)
Weight:	1.0 lbs.

1.2 SYSTEM DEFULTS & VALUE LIMITS

SYSTEM CONFIGURATION SETTINGS

<u>ITEM</u>	<u>DEFAULT</u>
AFIO #1	NONE
AFIO #2	NONE
AFIO #3	OUT_EndOfWeld
AFIO #4	OUT_SQUEEZE
AFIO #5	IN_FS-1
AFIO #6	IN_WSS BIT-0
AFIO #7	IN_WSS BIT-1
AFIO #8	IN_WSS BIT-2
AFIO #9	NONE
AFIO #10	NONE
AFIO #11	NONE
AFIO #12	NONE
AFIO #13	NONE
AFIO #14	NONE
AFIO #15	NONE
AFIO #16	NONE
BEAT MODE	NO
87° DELAY	YES
COUNT NOW	0000
COUNT END	0001
AT END	CONTINUE AT END

WELD SCHEDULE SETTINGS

<u>ITEM</u>	<u>DEFAULT</u>	<u>LIMITS</u>
XFMR	1	1-16
CLAMP TIME	0	0-99
SQZ DELAY	0	0-99
SQUEEZE	0	0-99
UPSLOPE	0	0-99
WELD1	0	0,½,1-99
HEAT1	0	0-99
COOL1	0	0-99
WELD2	0	0,½,1-99
HEAT2	0	0-99
PULSES	1	1-99
COOL2	0	0-99
HOLD	0	0-99
OFF	0	0-99
REPEAT	NO	NO, YES

1 CONNECTIONS

Pin #	Designation	Description		
J1-1	+24VDC/FSC	+24 positive input (/Foot switch common) - Powers the Weld Controller's internal circuitry. The Weld Controller requires 500 mA maximum for operation. Serves as a common point for FS1 and all AFIO pins configured as Inputs.		
J1-2	OVDC/SVC	+24 VDC negative return wire (/solenoid valve common) - serves as a common point for AFIO pins configured as Outputs.		
J1-3 & J1-4 OR J2-1 & J2-2	12-37VAC SYNC IN 110-480VAC SYNC IN	<table border="0"> <tr> <td style="vertical-align: top;"> <p>Synchronizing Low Voltage input</p> <p>Synchronizing High Voltage input</p> </td> <td style="border-left: 1px solid black; padding-left: 10px; vertical-align: middle;"> <p>Connect to an appropriate voltage source on the same phase as the welding contactor, to either J1-3 & J1-4 or J2-1 & J2-2. Current drawn by the SYNC input is less than 20mA. This input provides the source for the Weld Controller internal zero crossing reference that is used for timing of the transformer Heat% control.</p> </td> </tr> </table>	<p>Synchronizing Low Voltage input</p> <p>Synchronizing High Voltage input</p>	<p>Connect to an appropriate voltage source on the same phase as the welding contactor, to either J1-3 & J1-4 or J2-1 & J2-2. Current drawn by the SYNC input is less than 20mA. This input provides the source for the Weld Controller internal zero crossing reference that is used for timing of the transformer Heat% control.</p>
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J1-5	FIRING MODULE -	Used to provide 0 V to Firing Module Trigger reference and control relay. Typically connected to Firing Module (ESC-121) J1-2.		
J1-6	FIRING MODULE +	Firing pulse output that is pulse timed with respect to zero crossing governed by the setting of % HEAT the control requires. Normally connected to Firing module (ESC-121) J1-1. The output normally rests at 0 V and pulses to +24 VDC. SCR Temperature Limit Switch may be connected in series with this lead to stop welding when Contactor overheats.		
J1-7	WELD ENABLE	Normally connected to J1-8 (WELD ON OUTPUT). May be connected to J1-8 through a Weld/No Weld Switch. Connecting J1-7 to J1-8 (WELD ON OUTPUT) provides assurance from spurious weld output, without FS-1 being closed.		
J1-8	WELD ON OUTPUT	Mechanically switched +24 VDC output. This output turns on when FS-1 is closed. It is latched on when SV1 is turned on and FS-1 then can be opened. This output is used to power the WELD ENABLE and the control relay on the Weld Controller and Firing Module circuit. Thus, the weld and valve output circuits don't provide any output until FS-1 closes.		
J1-9	AFIO #1	Any Function Input/Output #1. See ...		
J1-10	AFIO #2			
J1-11	AFIO #3			
J1-12	AFIO #4			

Pin #	Designation	Description
J1-13	AFIO #5	
J1-14	AFIO #6	
J1-15	AFIO #7	
J1-16	AFIO #8	
J2-5	AFIO #9	
J2-6	AFIO #10	
J2-7	AFIO #11	
J2-8	AFIO #12	
J2-9	AFIO #13	
J2-10	AFIO #14	
J2-11	AFIO #15	
J2-12	AFIO #16	
J2-13 & J2-14	Current Transformer	Current sensing transformer input.

1.1 AFIO

AFIOs are Hardware pins that are Software configurable to serve as one of many different purposes, as needed by the Welding system designer. They can be either configured as an Input or an Output for any given configuration.

1.1.1 DIGITAL INPUTS

When an AFIO is configured as a Digital Input, then connecting it to +24VDC (J1-1), will make it active. No more than 20mA will be required.

1.1.2 DIGITAL OUTPUTS

When an AFIO is configured as a Digital Output, then it will supply +24VDC when active, at a maximum of 500mA. Connect the negative side of the device you are controlling to +0VDC (J1-2).

1.1.3 ANALOG INPUTS

1.1.4 ANALOG OUTPUTS

1.2 FIRING MODULE (P/N ESC-121)

The SCR cathode and gate connections are referenced to line voltage potential of L1 and H1. Thus, the SCR gate and cathode connections are at line potential and will attempt to sink L1 and H1 currents if shorted.

1.2.1 FIRING BOARD MOUNTING

The Firing Module is designed to snap into an existing Intertron 401 Firing Module Track, if upgrading an Intertron control, and reuse is desired.

Otherwise, The Firing module can be installed using the 3 supplied nylon standoffs. If space is of concern, the removable tab on the Circuit Board can be removed by bending the tab at the scored break on the circuit board.

1.3 WIRING PRACTICES

Typical control installation requires connection of differing voltage potentials. Standard practices of separating higher voltage primary (L1, L2, H1, H2 – 480 VAC) connections, solenoid valve (SV1 and VL1 – 120 VAC) connections and input (FS1, SV1, and ALL AFIOs) connections from each other must be followed.

1 SYSTEM CONFIGURATION

1.1 AFIO FUNCTIONS

1.1.1 NONE

No functionality programmed.

1.1.2 IN_FS-1

Foot Switch #1. Used to initiate the Weld sequence. Every System needs at least one.

1.1.3 IN_FS-2

Causes the Weld sequence to pause after the programmed SQUEEZE TIME, and waits until this input becomes active.

1.1.4 IN_WELD ENABLE

Input must be active for Current to be applied to the Welding Transformer.

1.1.5 IN_RETRACTION +

OUT_RETRACTION Output directly mimics Retraction Input. Retraction Output must be on for welding to proceed. If Retraction Output is off, the display will read **RETRACT NOT RDY**.

1.1.6 IN_RETRACTION -

OUT_RETRACTION Output is the opposite state of the Retraction Input. OUT_RETRACTION AFIO Output must be off for welding to proceed. If Retraction Output is on, the display will read **RETRACT NOT RDY**.

1.1.7 IN_RETRACTION P+

An impulse on IN_RETRACTION P+ Input changes the state of Retraction Output. OUT_RETRACTION AFIO Output must be on for welding to take place. If Retraction Output is off, the display will read **RETRACT NOT RDY**.

1.1.8 IN_RETRACTION P-

An impulse on IN_RETRACTION P- Input changes the state of Retraction Output. OUT_RETRACTION AFIO Output must be off for welding to take place. If Retraction Output is on, the display will read **RETRACT NOT RDY**.

1.1.9 IN_COUNT RESET

When Input is Active (High), then the Weld Counter will be reset to the value 0000.

1.1.10 IN_WSS BIT-

When any AFIO pin is configured as a Weld Schedule Select Bit (WSS BIT), and any of them is Active (High), then all of them will be combined in binary fashion to change the current Weld Schedule to be the binary value.

1.1.11 IN_E-STOP

Weld controller will abort the current Weld Sequence when this input is active.

1.1.12 OUT_SQUEEZE

This AFIO Output will be ON starting with AFIO IN_FS-1 Input becoming Active (High), and will turn OFF at the end of HOLD TIME.

1.1.13 OUT_RETRACTION

This AFIO Output should be connected to the Retraction Valve.

1.1.14 OUT_EndOfWeld

This AFIO Output will pulse ON, starting at the end of HOLD TIME.

1.1.15 OUT_COUNTER

This AFIO Output will turn ON when the Weld Counter COUNT NOW reaches the COUNT_END value. It will turn OFF when the COUNT NOW value is reset by IN_COUNT RESET AFIO Input, or through the Menu.

1.1.16 OUT_INTERLOCK

This AFIO Output will be ON during a Weld Sequence, to allow the use of an Inter-locking device to limit only one device to weld at a time.

1.1.17 OUT_MOTOR SEAM

This AFIO Output will be ON during the Motor ON time of SEAM-Weld mode

1.1.18 OUT_MOTOR ROLL/SPOT

This AFIO Output will be ON during the Motor ON time, then turn OFF of ROLL/SPOT-Weld mode.

1.1.19 OUT_CLAMP

This AFIO Output will be ON during the CLAMP time of Butt-Weld mode

1.1.20 OUT_UPSET

This AFIO Output will be ON during the UPSET time of Butt-Weld mode.

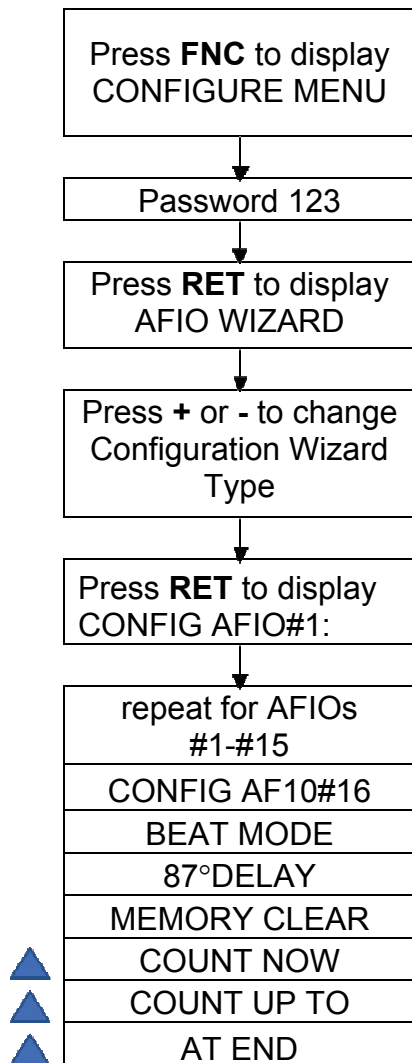
1.1.21 OUT_VALVE-

This AFIO Output will go Active (High) when the selected bit is set in the Weld Schedule.

1.1.22 OUT_XFMR-

This AFIO Output gets connected to the Firing Module (+) of the desired Transformer.

1.1 CONFIGURATION MENU



An * in the display indicates unsaved values. If the value has changed, then RET will save it, otherwise RET will advance to the next item.

Press **BAK** to go back one step

Use **+** or **-** to change one value at a time In addition, you can use the Sched/0-9 switch which shows the weld schedule summary or keypad for direct input of numbers

▲ These functions may not appear, depending on your configuration.

1.1 CONFIGURATION WIZARD

The Weld Controller has various configurations to tailor it for specific applications:

1. Press **FNC** until the display reads **CONFIGURE MENU: 000**.
2. Type in PASSWORD: "123" Press **RET**
3. The display will read **AFIO WIZARD:[00]SPOT**
4. Select the type of configuration you want.
5. If you wish to change the displayed setting, use the **+** or **-** keys to find the required value (displayed value will be preceded by "*"). Press **RET** to enter the value. If you do not wish to change this function's value, move directly to step **Error! Reference source not found.**
6. Changing the configuration type using the AFIO WIZARD will change AFIOs #1-8 according to tables 3.4 AFIO WIZARD CONFIGURATION TABLE (AFIO1-4) & 3.5 AFIO WIZARD CONFIGURATION TABLE (AFIO5-8).
7. Press **RET** to move to the next item in the Configure menu.

1.1 AFIO WIZARD CONFIGURATION TABLE (AFIO1-4)

CONFIG TYPE	AFIO #1 J1-9	AFIO #2 J1-10	AFIO #3 J1-11	AFIO #4 J-12
[00] Spot	NONE	NONE	OUT_EndOfWeld	OUT_SQUEEZE
[01] Spot, FS-2	NONE	OUT_INTERLOCK	OUT_EndOfWeld	OUT_SQUEEZE
[02] Spot, Ret	OUT_RETRACTION	NONE	OUT_EndOfWeld	OUT_SQUEEZE
[03] Spot, Cnt	NONE	OUT_COUNTER	OUT_EndOfWeld	OUT_SQUEEZE
[04] Spot, FS-2, Ret	OUT_RETRACTION	OUT_INTERLOCK	OUT_EndOfWeld	OUT_SQUEEZE
[05] Spot, Cnt, Ret	OUT_RETRACTION	OUT_COUNTER	OUT_EndOfWeld	OUT_SQUEEZE
[06] Spot, FS-2, Cnt	NONE	OUT_COUNTER	OUT_EndOfWeld	OUT_SQUEEZE
[07] SpotFS-2, Cnt, Ret	OUT_RETRACTION	OUT_COUNTER	OUT_INTERLOCK	OUT_SQUEEZE
[08] Spot, ½Cyc	NONE	NONE	OUT_EndOfWeld	OUT_SQUEEZE
[09] Spot, FS-2, ½Cyc	NONE	OUT_INTERLOCK	OUT_EndOfWeld	OUT_SQUEEZE
[10] Spot, Cnt, ½Cyc	NONE	OUT_COUNTER	OUT_EndOfWeld	OUT_SQUEEZE
[11] Roll-Spot	NONE	NONE	OUT_MOTOR	OUT_SQUEEZE
[12] Seam	NONE	NONE	OUT_MOTOR	OUT_SQUEEZE
[13] Butt-Weld	NONE	NONE	OUT_MOTOR	OUT_SQUEEZE

1.1 AFIO WIZARD CONFIGURATION TABLE (AFIO5-8)

CONFIG TYPE	AFIO #5 J1-13	AFIO #6 J1-14	AFIO #7 J1-15	AFIO #8 J1-16
[00] Spot	IN_FS-1	IN_WSS BIT-0	IN_WSS BIT-1	IN_WSS BIT-2
[01] Spot, FS-2	IN_FS-1	IN_WSS BIT-0	IN_WSS BIT-1	IN_FS-2
[02] Spot, Ret	IN_FS-1	IN_WSS BIT-0	IN_WSS BIT-1	IN_RETRACTION
[03] Spot, Cnt	IN_FS-1	IN_WSS BIT-0	IN_WSS BIT-1	IN_COUNT RESET
[04] Spot, FS-2, Ret	IN_FS-1	IN_WSS BIT-0	IN_RETRACTION	IN_FS-2
[05] Spot, Cnt, Ret	IN_FS	IN_WSS BIT-0	IN_COUNT RESET	IN_RETRACTION
[06] Spot, FS-2, Cnt	IN_FS	IN_WSS BIT-0	IN_COUNT RESET	IN_FS-2
[07] Spot FS-2, Cnt, Ret	IN_FS	IN_RETRACTION	IN_COUNT RESET	IN_FS-2
[08] Spot, ½Cyc	IN_FS	IN_WSS BIT-0	IN_WSS BIT-1	IN_WSS BIT-2
[09] Spot, FS-2, ½Cyc	IN_FS	IN_WSS BIT-0	IN_WSS BIT-1	IN_FS-2
[10] Spot, Cnt, ½Cyc	IN_FS	IN_WSS BIT-0	IN_WSS BIT-1	IN_COUNT RESET
[11] Roll-Spot	IN_FS	IN_WSS BIT-0	IN_WSS BIT-1	IN_WSS BIT-2
[12] Seam	IN_FS	IN_WSS BIT-0	IN_WSS BIT-1	IN_WSS BIT-2
[13] Butt-Weld	IN_FS	IN_WSS BIT-0	IN_WSS BIT-1	IN_WSS BIT-2

1.2 RETRACTION

Some Configurations require a RETRACTION function which is used when a welding gun has two “open” states – a wide “open” state for positioning the gun around a component and a “working” state.

If Retraction functionality is required, then an AFIO pin must be configured as IN_RETRACTION, and an AFIO pin must also be configured as OUT_RETRACTION.

1.1 BEAT MODES

Select **BEAT** if it is needed to stop the sequence when the initiation is opened, no matter where the sequence is at.

Select **NON-BEAT** when it is needed for the sequence to latch after SQUEEZE is complete.

1.1 87° DELAY

This function delays the first half-cycle of each weld sequence by 87°. The purpose of the 87° DELAY is to prevent the build-up of a DC component in the welding transformer. A DC component may be damaging when wound core (hypersil) transformers are used. This parameter defaults to **On**. If not needed, change to **OFF**.

1.2 COUNTER

If any AFIO is configured as OUT_COUNTER, then the Counter function will be enabled, and the following will apply:

The current values for COUNT END & COUNT NOW will be displayed in the upper right hand corner of the display.

For this function, an End Count value is entered into the **COUNT END** parameter. A Counter within the Weld Controller increments each time a weld sequence is completed. When the number of welds completed equals the number of welds programmed as **COUNT END**, the OUT_COUNTER AFIO Output turn ON.

If **STOP AT END** has been programmed, the Weld Controller will ignore Start/Initiation Inputs when this stage has been reached, otherwise **CONTINUE AT END** has been programmed, and welding will continue.

The COUNT NOW Counter and OUT_COUNTER AFIO Output can be cleared by applying a signal to the IN_COUNT RESET AFIO Input.

At any stage, the value of the Counter can be changed, if required, using the **COUNT NOW** parameter.

- COUNT NOW: The number of weld sequences carried out since the Counter was reset.
- COUNT END: The number of welds after which control will switch on the OUT_COUNTER AFIO Output.
- AT END: Selects whether or not the control will initiate further weld sequences when the OUT_COUNTER AFIO Output has switched on.

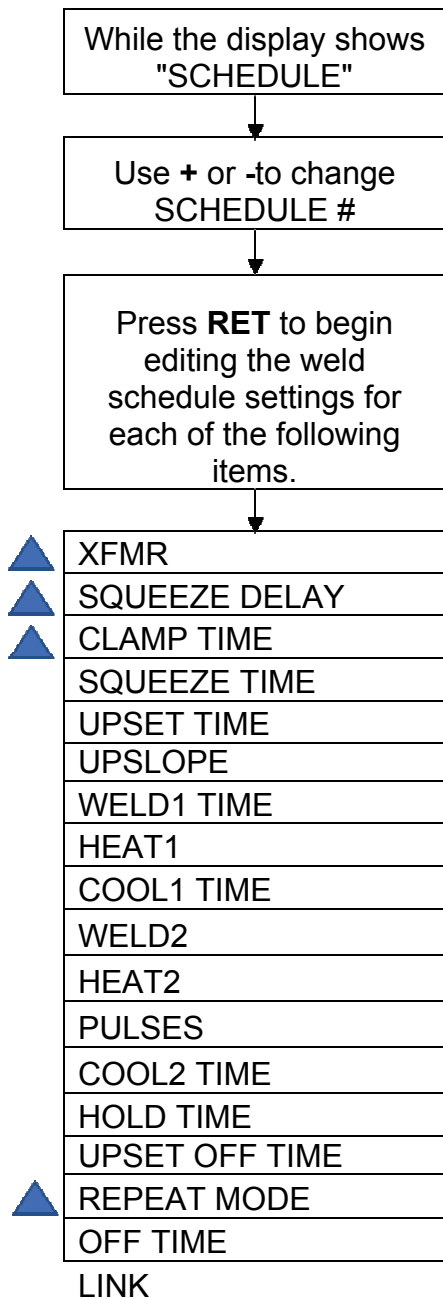
1.3 MEMORY CLEAR

This function defaults to **NO**. Leave as **NO** to retain settings as programmed.

Select **YES** to clear ALL System settings and ALL Weld Schedules to factory default settings as defined in 1.2 SYSTEM DEFAULTS & VALUE LIMITS

1 PROGRAMMING WELD SCHEDULES

Weld Schedule Configuration



An * in the display indicates unsaved values. If the value has changed, then RET will save it, otherwise RET will advance to the next item.

Press **BAK** to go back one step

Use **+** or **-** to change one value at a time. In addition, you can use the Sched/0-9 switch which shows the weld schedule summary or keypad for direct input of numbers.

▲ These functions may not appear, depending on your configuration.

Once the Weld Controller has been configured for the specific application, it must be programmed with the welding functions available in the Edit menu. To program a **SCHEDULE** (a set of functions):

1. Press **FNC** until the display reads **EDIT SCHEDULE 0**.
2. Use the **+** or **-** key to select the **SCHEDULE** number required.
3. Press **RET** to enter the **SCHEDULE** number.

4. Press **RET** again to move to the first function.
 - a) With each function, use the **+** and **-** keys to select the appropriate value.
 - b) When the value is correct, enter it by pressing **RET**.
5. Then press **RET** again to move to the next function.

At any point, **FNC** can be pressed to exit programming of welding functions.

If the Weld Controller has been set to use a Counter, the display will read **COUNTER** after exiting Edit menu. See Section 3.9 **COUNTER** for more details about the COUNTER function.

1.1 WELD SCHEDULE FUNCTIONS

1.1.1 XFMR

The Transformer that is to be controlled using the Weld Settings in the current Weld Schedule.

1.1.2 SQUEEZE DELAY (PRESQUEEZE)

The time (in cycles) allowed for the electrodes to meet. Only applicable in Repeat MODE when OFF function is programmed

1.1.3 CLAMP TIME

The time (in cycles) that the OUT_CLAMP AFIO Output will be ON, before the OUT_UPSET AFIO Output will turn ON.

1.1.4 SQUEEZE TIME

The time (in cycles) allowed for the electrodes to build up full welding pressure on the component.

1.1.5 UPSET TIME

The time (in cycles) that the OUT_UPSET AFIO Output will be ON, before the beginning of any Upslope or Heat.

1.1.6 UPSLOPE TIME

The time (in cycles) during which the heat builds up from minimum to the set HEAT level. UPSLOPE time is additional to the programmed WELD times and defines how much of the HEAT interval is to be sloped.

1.1.7 WELD 1 TIME

The duration (in cycles) of the first weld interval.

1.1.8 HEAT 1 %

Controls the heat % of the first weld interval.

1.1.9 COOL 1 TIME

The time (in cycles) after the end of WELD 1 TIME & beginning of WELD 2 TIME.

1.1.10 WELD 2 TIME

The duration (in cycles) of the second weld interval.

1.1.11 HEAT 2 %

Controls the heat of the second weld interval.

1.1.12 PULSES

The number of times WELD 1, HEAT 1%, COOL 1, WELD 2, HEAT 2% & COOL 2 is repeated (pulsed).

1.1.13 COOL 2 TIME

The time (in cycles) after the end of WELD 2 TIME and beginning of WELD 1 TIME

1.1.14 HOLD TIME

The time (in cycles) for which welding pressure is maintained on the weld after welding current has ceased.

1.1.15 UPSET OFF TIME

The time (in cycles) after the end of HOLD TIME, until the OUT_UPSET AFIO Output turns OFF.

1.1.16 REPEAT MODE

Selects either Non-Repeat sequence or Repeat sequence operation. Non-Repeat sequence operation performs one weld sequence when the control is initiated. Repeat sequence performs successive weld sequences for the duration of the start/initiation signal.

1.1.17 OFF TIME

The time (in cycles) from the end of HOLD TIME, until the beginning of the next SQUEEZE DELAY of the next weld sequence. Only applicable in Repeat MODE.

1.1.18 LINK

Allows multiple Weld Schedules to be used in a single Weld Sequence. There are 3 different Link modes too allow for the most flexibility.

CHAIN:

When the current Weld Schedule finishes being executed, the next consecutive Weld Schedule will be selected and executed immediately.

SEQUENTIAL:

When the current Weld Schedule finishes being executed, the next consecutive Weld Schedule will be selected and wait for a Foot Switch Initiation to begin of the current Weld Schedule.

SIMULTANOUS:

Allows multiple consecutive Weld Schedules to be executed at the same time. This allows multiple Transformers to Weld concurrently.

2 OPERATION

2.1 SELECT A WELD SCHEDULE

The Weld Controller allows weld schedules to be selected either internally by using the touch screen or externally by using Weld Schedule Select(WSS) bits.

2.1.1 USING INTERNAL SCHEDULE SELECT

When there are no AFIOs configured for WSS (Weld Schedule Select), the weld schedule must be selected by entering a **SCHEDULE** number using the Weld Controller touch screen as follows:

1. **FNC** to return to Run menu.
2. The display will show **SCHEDULE:xx**.
3. Press either **+** or **-** to find the required **SCHEDULE** number (xx), then press **RET** to save it.

When the control is initiated, it will weld using the schedule selected by this procedure, not a schedule selected by inputs.

2.1.2 USING EXTERNAL SCHEDULE SELECT

To select a weld schedule using inputs, at least 1 AFIO must be programmed as WSS-BIT (Weld Schedule Select Bit). Refer to 3.1.10 IN_WSS BIT- for details

2.2 START A WELD

When control has been configured and programmed, welding can proceed. Select schedule to be used and operate the Start/Initiation Input (FS-1). A weld sequence will begin.

If control is in NON-BEAT MODE, the start/initiation signal must be held on until the first weld period. If the start/initiation signal is removed before this, the weld sequence will be aborted.

If control is in BEAT MODE, the start/initiation signal must be held on the entire schedule.

2.3 SECOND STAGE INITIATION

Applicable only when an AFIO is programmed as IN_FS-2.

Some Configuration Types require a second stage initiation. Where this is needed, the control checks for AFIOs programmed as FS-2 when the weld sequence has reached the end of the SQUEEZE time. If any AFIOs are programmed as FS-2, then all of them must have 24V on them before the sequence continues. If there is no voltage present on any AFIO programmed as FS-2, the sequence waits for the second stage initiation signal before advancing from SQUEEZE.

2.4 END OF SEQUENCE OUTPUT

At the end of the weld sequence, if any AFIO is programmed as End Of Weld (EOW), they will switch on for 500 ms.

If a new weld sequence is initiated during the time the EOW is on, the End of Weld Output will be reset and switches off.

3 OTHER FUNCTIONS

The Weld Controller features configurable functions which expand the versatility of this control.

3.1 INTERLOCK

An interlock is an arrangement of welding controls that ensures no more than one control is welding at any time. This is to ensure that the line supply is not overloaded. An interlock can also be used to sequence one after the other. Any AFIO can be configured as an Interlock Output.

This Weld Controller offers an external interlocking output which requires an External Interlock unit. Interlocking is achieved by the Interlock Output from the control switching on at the end of SQUEEZE time and switching off at the beginning of HOLD time (on during HEAT or WELD). Interlock Outputs from a number of controls are connected to the Interlock unit. The Interlock grants welding permission to one control at a time by controlling the Second Stage Inputs of the controls. The Interlock unit requires one channel for each connected control.

The Interlock Input/Output must be chosen to match the 24 VDC inputs and 24 VDC outputs of the Timer.

1 WARRANTY

Janda Company, Inc., warrants that this Weld Controller is free of manufacturing defects for a period of **TWO YEARS** from the date of original purchase and, in the event of a manufacturing defect, Janda Company, Inc. will repair or replace, at its discretion, the defective part without any cost for parts or labor.

1.1 EXCLUSIONS:

This warranty does not cover damage by accident, misuse, unauthorized repair or modification to any control assembly by the customer.