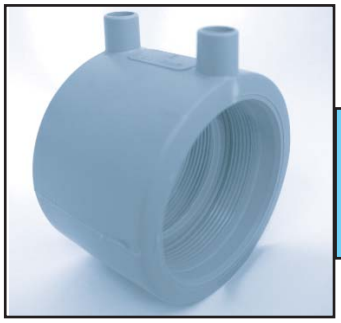
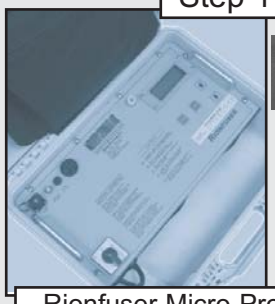
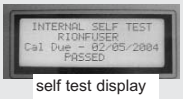
The instructions below are for installing the New ***Rionfuse CF system*** using the ***RIONFUSER*** electrofusion micro-processor. It is up to the installing contractor to follow these guidelines and make practical adjustments if necessary. **If installing the Original Rionfuse system, please refer to Original Rionfuse installation instruction booklet.**



RIONFUSE CF COUPLING
Clamp-Free Design with Molded-In electrofusion wire

Step 1





self test display

Rionfuser Micro-Processor

Turn on power switch on the Rionfuser Unit and allow it to perform the ***automated self test***.

Step 2

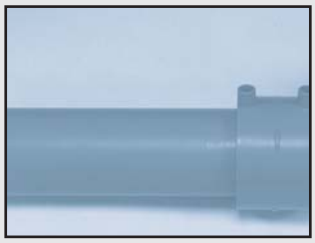
Size	Depth
1-1/2”	1”
2”	1”
3”	1-3/8”
4”	1-3/8”
6”	2”
8”	2-5/8”

Using the chart above mark the correct coupling depth on the pipe/fitting.
Note: If using pipe, make sure to cut the pipe straight and de-burr before marking the coupling depth.

Step 3

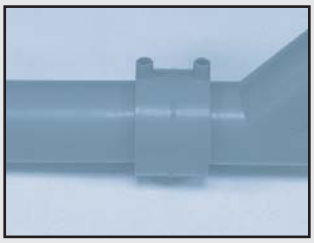
Using 60 grit emery cloth, abrade the pipe/fitting area that is to be fused.
Note: Do not over-sand the pipe surface. Only abrade the pipe enough to remove the shiny surface of the pipe.

Step 4



Insert the pipe/fitting completely into the coupling. Verify that the pipe/fitting is fully seated into the coupling by making sure the edge of the coupling is even with the mark on the pipe from step 2.

Step 5

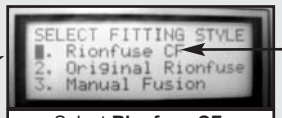


The coupling fuses both sides at once so repeat steps 2 thru 4 for the other side of the coupling.

Step 6

Once both sides of the coupling has pipe/fitting properly seated, connect the Rionfuser leads to coil terminals. Rionfuser will display “Connect Leads” until the leads are attached.

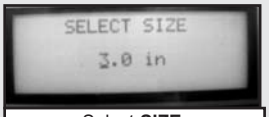
Step 7



Select **Rionfuse CF**.

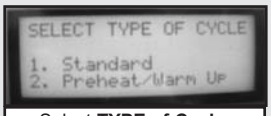
Once continuity is confirmed, the display show **SELECT FITTING STYLE** (Rionfuse CF or Original) *There is also a Manual Over-ride option. See manual override instruction pages when using that option*.

Select **Rionfuse CF**.
After selecting Rionfuse CF, the machine will ask you to select **Size**.
Enter the correct size using the up/down arrows, then press **start**.



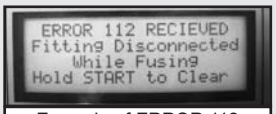
Select **SIZE**.

Once the *proper* size is selected, the Rionfuser will display, SELECT TYPE OF CYCLE .
Under "Normal" environmental conditions, select **Standard**, then press start.



Select **TYPE of Cycle**.

If ambient temperatures are below 50 degrees F, the joints must be **preheated**. In this case, select the **PREHEAT** cycle, then press start.
Refer to the chart on page 3 for pre-heat instructions. *If preheat is selected, the Rionfuser will first preheat the joints and then automatically begin the standard fusion cycle after a 2 minute "Heat Soak Time". During the heat soak time, the unit will not be fusing the joint, but the leads cannot be removed. If they are removed, the Rionfuser will stop the cycle and sound an audible alarm as well as display Error 112.*



Example of ERROR 112

If the standard cycle is selected, the Rionfuser will automatically calculate the proper current and fusion time and will display the "Verify Weld Data" screen. If the weld data is cor-

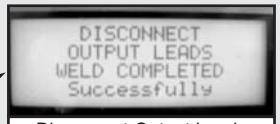
Examples of Error Codes

Error 108	Power Supply cut off	**Error 110**	Fusion aborted by operator
Error 112	Element Disconnecetd	**Error 128**	Cannot maintain output current

Other error codes are possible. Please consult the Rionfuser manual or contact Orion for more information. Most errors are the result of incorrect power supply or the use of a bad generator. Do not use diesel welding generators to power the Rionfuser unit. Standard 5000 watt generators used as a dedicated power source are typically sufficient.

Step 8

As an alternative to pressing start on the control box, the installer can press the start button on the output leads.
Fusion cycle information is shown to the right.
The machine will automatically stop the fusion process and sound an audible alarm when the fusion cycle is complete. Disconnect the leads. Repeat steps 2-8 for additional fittings.



Disconnect Output Leads

Fusion Cycle Information

Pipe Size	Fusion Time	Fusion Current
1-1/2"	2:00 (2 min)	8.25 AMPS
2"	2:00 (2 min)	8.25 AMPS
3"	3:00 (3 min)	14.25 AMPS
4"	3:00 (3 min)	14.25 AMPS
6"	4:30 (4-1/2min)	19.00 AMPS
8"	4:45 (4-3/4 min)	19.00 AMPS
10"	00000	000AMPS
12"	00000	000AMPS

*Note: If necessary, the Rionfuser has a **MANUAL OVERRIDE** function. To perform this function, select the MANUAL OVERRIDE option (Option #3 in the SELECT FITTING STYLE menu).*

Cold Weather Assembly Guidelines for Rionfuse CF

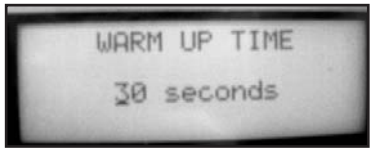
Fusion should NOT be attempted below 30 degrees F. At very cold temperatures, heat should be brought to the fusion area to bring it to temperatures above 30 degrees. In addition, all material should be shielded from the wind and kept dry.

In cold weather applications (below 50 degrees F) the joints should be pre-heated prior to performing the standard fusion cycle. If the pre-heat cycle is used, the Rionfuser will automatically begin the standard fusion cycle after a 2 minute heat soak cycle (machine will display a countdown timer during this time). **The Rionfuser automatically defaults to a 30 second pre-heat cycle**, which is sufficient for many applications. However, due to a wide range of variables that occur in cold weather installations (wind, UV absorption, etc) additional pre-heat times may be necessary and it is up the the installing contractor to determine what the proper pre-heat time is based on these varying field conditions.

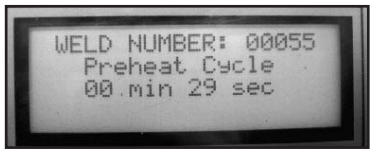
The Rionfuser will promt the installer to select the Preheat/Warm Up Cycle (Option #2)

The warm up time defaults to 30 seconds. This time can be changed by pressing the up/down arrows to the desired time, then press start.

Once the proper preheat time is entered, the Rionfuser will prompt the installer to verify the correct information prior to beginning the fusion cycle. If something is not correct, DO NOT START THE FUSION CYCLE.



The Rionfuser will display the preheat cycle remaining time (as well as the weld number)



After completion of the preheat cycle, the Rionfuser will automatically switch to the 2 minute heat soak time. After completion of the heat soak cycle, the Rionfuser will automatically begin the <u>standard fusion cycle.</u>

Rionfuse CF Multiple Jointing (# of FULL Couplings)								
Pipe Size:	1-1/2”	2”	3”	4”	6”	8”	10”	12”
Max # of Couplings	3	3	2	2	1	1	1	1

In some rare instances, it may be necessary to manually override the Rionfuse unit in order to enter times and/or currents that are not preset in the unit. The Manual Override function can also be used to fuse other materials-only if the fusion parameters (time and current) are known by the installer.

The basic instructions for using the manual override are as follows:

1. When promted to SELECT FITTING STYLE (from step #7) select option #3 MANUAL OVERRIDE
2. Enter the weld current for the fitting being fused by pressing the UP/DOWN arrows. The weld current is shown in amps. Once current has been entered, press START.
3. Enter the proper fusion time for the fitting being fused by pressing the UP/DOWN arrows. Once the proper fusion time has been entered, press start.
4. The machine will ask the installer to “Verify the Weld Data”. If the welding parameters shown on the diplay are correct, press start to begin the “Manual” fusion cycle. At the end of the fusion cycle, the unit will stop the fusion and sound an audible alarm. Disconnect the leads and fuse another fitting if necessary.

Note: If the weld data is incorrect, do not begin the fusion cycle. Disconnect the leads and go back to step #1. Also, pressing stop will cause the Rionfuser to go back one menu item.

PRECAUTIONS AND ADDITIONAL INSTALLATION SUGGESTIONS

1. Installation is not recommended at ambient temperatures below 40 degrees F. If fusion is to be performed at below 40 degrees, precautions must be made to be sure that the area is properly covered and heated.
2. **Do not test with compressed air or gases. Test hydrostatically only. Typically a 10ft hydrostatic head pressure test is sufficient.**
3. Store pipe and fittings out of direct sunlight. If material is to be stored outside, it should be covered with a black tarp and shielded from UV rays and kept dry.
4. The Rionfuser has internal re-callibration capabilities. This unit will remind the user when it is time for factory re-calibration (approximately every 2 years) This maintenance schedule must be strictly followed to insure proper machine function.
5. Portable generators must be a minimum of 5kW and be dedicated to the Rionfuser Unit only. Diesel generators will NOT work.
6. The maximum allowable extension cord is 100 ft of 10 gauge wire.
7. The Rionfuser unit allows for normal power variations. It is important to make sure that the power source can supply a minimum of 100 volts (max of 150) before making Rionfuse joints. The Rionfuser will not start the fusion cycle if the supply voltage is not within 100-150 volts. If the Rionfuser cannot maintain output current due to drops in power supply during the fusion cycle, or there is a loss in continuity during the fusion cycle, the Rionfuser will end the cycle and sound an audible alarm. If this occurs, the problem with the power source must be corrected (or thecontinuity fixed) before attempting to fuse any further joints. If power fluxuations or drops in power are allowed to continue, leaks in joints may occur as a result.
8. If a leak occurs, the system must be drained and the joints dried out. Re-connect the Rionfuser leads and fuse the joint using the warm up cycle setting (30 seconds). Upon completion of the warm up out cycle proceed to step 8 to re-start the standard fusion cycle.
9. Proper support of all joints must be achieved during the fusion and cooling cycles (approx 10 minutes)
10. This brochure is meant to provide guidelines for fusing the Rionfuse CF system. Good typical plumbing installation practices as well as common sense should also be used. When in doubt, contact your local Orion Representative for installation suggestions.