

Installation Instructions

Rionfuse CF

Rionfuser™ 3000LE Bluetooth®

Rionfuser™ 3000LE LT

Rionfuser™ 3000LE USB

Polypropylene and PVDF Chemical Waste Systems

⚠ WARNING



**THINK
SAFETY
FIRST**

Read this Manual **BEFORE** using this equipment.

Failure to read and follow all safety and use information can result in death, serious personal injury, property damage, or damage to the equipment.

Keep this Manual for future reference.

⚠ DANGER



Electricity, electrocution and shock hazards.

⚠ WARNING

Local building or plumbing codes may require modifications to the information provided. You are required to consult the local building and plumbing codes prior to installation. If the information provided here is not consistent with local building or plumbing codes, the local codes should be followed. This product must be installed by a licensed contractor in accordance with local codes and ordinances.



RF 3000LE

NOTICE

Follow the guidelines listed here for proper installation, operation, and maintenance.

ORION®

A **WATTS** Brand

Calibration Recommendations

It is strongly recommended that each processor be calibrated at least once every two (2) years. This will help ensure that the **Rionfuser™ Electrofusion Processor** is in proper calibration and should enable any potential problems to be identified early.

RF-3000LE

When the calibration period has expired the processor will display the message, "**Error 113: Calibration Required,**" informing the operator that the calibration date has passed. ***When this occurs, the processor will stop performing fusions until it has been recalibrated.***

Rionfuser™ LT

When the calibration period has expired the processor will display the message "Error 113: Calibration Required," informing the operator that the calibration date has passed. This will not prevent the processor from performing fusions; however, the processor should be calibrated as soon as possible.

NOTICE

The correct output voltage cannot be assured if the processor is not calibrated at least once every two (2) years.

Service Contact Information

Calibrating your Rionfuser™ Electrofusion Processor:

1. Send the processor to a WATTS service center and let our technicians do it.

Call (302) 451-1088 to make arrangements for service and to obtain an RMA number for the return. Every effort will be made to return processors within 2 business days.

NOTICE

Consult your carrier for the proper method of packaging the processor for return shipments. Always insure the package for the full replacement value. Keep in mind that most carriers will not honor insurance claims if the product is not shipped in accordance with their guidelines. WATTS is not responsible for damage caused in shipping.

RF-3000LE Product Overview

Rionfuser™ Electrofusion Processor

Connection Sizes: 1.5" – 12" (38mm to 305mm)

The Rionfuser™ RF-3000LE electrofusion processor is a reliable, easy-to-use, rugged tool designed to withstand conditions found at typical construction sites. It comes with an integral splash-proof and shock resistant outer suitcase-style enclosure. The Rionfuser™ RF-3000LE is used to thermally fuse Orion Rionfuse RFCF couplings to Orion pipe and fittings, and can be used with Orion PP, FRPP or PVDF products. The RF-3000LE can be operated from any AC power source meeting the listed input power requirements, and comes with an intuitive user interface. The Rionfuser™ RF-3000LE cannot be used with other manufacturers' electrofusion couplings. The RF-3000LE supports Bluetooth® wireless technology that can be viewed instantly via your mobile device using Apple® iOS and Android™ operating systems. A free app can be downloaded from the App Store® online store or Google Play™ store.

Features

- Size-dependent multiple joint fusion capability
- Field calibration capability
- Downloadable internal memory for data storage
- Bluetooth wireless connection to mobile devices
- 4X20 LCD display with replaceable shield
- Compact and lightweight
- Field-replaceable output cable ends
- User-accessible fuse
- Emergency stop switch
- Can store fusion information for 1,000 fusions



Model RF-3000LE

Specification

Hermetically sealed joints conforming to ASTM F1290, Technique 1 are to be produced for the Orion chemical piping system using the Orion Rionfuser™ machine model RF-3000LE, an electrofusion processor designed to be used exclusively with Orion RFCF electrofusion couplings in either FRPP or PVDF material. The RF-3000LE shall have an integral splash-proof and shock resistant outer suitcase-style enclosure, intuitive LCD display user interface, size dependent multiple joint fusion capability, field calibration capability, and downloadable internal memory. The fusion machine shall have user-accessible fuse, emergency stop switch, Bluetooth® wireless communication, and will operate from any AC power source meeting listed input power requirements.

Operating Parameters

- Supply Voltage – 97 VAC to 150 VAC
- Supply Frequency – 47 Hz to 70 Hz
- Supply Waveform – Sine Wave or Square Wave
- Output Current – 20 Amps AC
- Output Voltage – 95 VAC at 120 Volts Input
- Operating Temp. Range – 0°F to 120°F (-18°C to 49°C)
- Operating Modes – CF FRPP, PVDF, Manual
- Input Cable Length – 12ft (3.66m)
- Output Cable Length – 24ft (7.315m)
- Fusion Information Storage – 1,000 Fusions
- Languages – English
- Environmental Protection – IP54 Splash-Proof
- Calibration Interval – 2 Years
- Dimensions – 19in x 14in x 7in (477mm x 360mm x 180mm)
- Weight – 17lbs (7.7kg)

Installation Instructions

Step 1

Confirming RF-3000LE is Calibrated

Start up your Rionfuser™ RF-3000LE and it will perform a Self Test. If the Cal Due date has passed or is within the life of your project, then STOP, and contact your Orion Representative for instructions on how to get your machine recalibrated. Watts disclaims all liability for installations performed with a Rionfuser past its calibration date.

For additional information reference the RF-3000LE Instruction Manual included in the carrying case.

Step 2

Preparing the Pipe

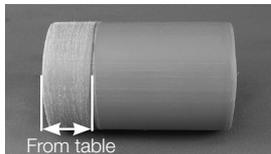
Material preparation is essential to achieving satisfactory fusion results. Deburr all field-cut pipe ends. Following the coupling insertion depth chart, mark the coupling insertion depth from the end of the pipe/fitting to insure that the coupling is properly positioned during the fusion cycle. Then, using 60 grit emery cloth, abrade the marked ends of the pipe and fitting to remove the natural “sheen” of the plastic. After abrading, clean all joint surfaces thoroughly with isopropyl alcohol to remove any dirt, grease and the contaminants left from the sandpaper and any other foreign matter from the surface. We suggest using a spray bottle with 90% or higher isopropyl alcohol to soak a lint resistant cloth to thoroughly wipe the joint surface clean.

COUPLING INSERTION DEPTH MARKING

Pipe Diameter <i>in.</i>	Mark Distance from Pipe End <i>in.</i>
1 ½	1
2	1
3	1 ¾
4	1 ¾
6	2
8	2 ⅝
10	2 ⅝
12	2 ⅝



Mark coupling depth

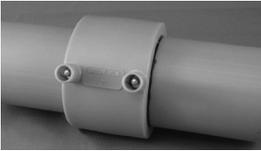


Abrade surface

Step 3

Joint Assembly

Insert the prepared ends of the pipe/fitting into both hubs of the Rionfuse CF coupling. Double check the markings to verify proper seating of the pipe.



Insert into coupling and verify proper seating

Step 4

Connecting Lead Cables

The installer must make sure the joint is properly supported during the fusion cycle and afterwards as the joint cools to ambient. For underground installation the joint must be protected from soil falling into the fusion assembly area. If ambient temperature has dropped below 60F in the last 24 hrs, we recommend the use of warming blankets to support, wrap, and protect the pipe during the fusion process. With the Rionfuser unit connected to a dedicated power source and powered ON, connect the lead cables to the coupling.

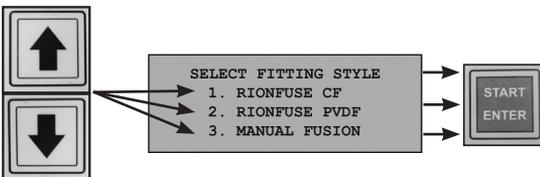


Connect lead cables

Step 5

Selecting Fitting Style

The unit will now prompt the installer to "SELECT FITTING STYLE". Scroll UP or DOWN to highlight the proper fitting style being fused, then press START to select the fitting style.

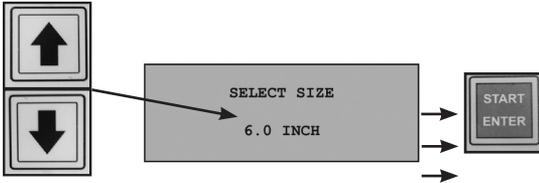


Fitting style selection screen

Step 6

Selecting Pipe Size

Next the unit will prompt the installer to select the size of the joint being fused. Scroll UP or DOWN to highlight the correct size, then press START to select size.

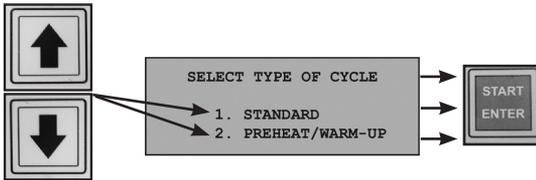


Fitting size selection screen

Step 7

Selecting Heat Cycle

The unit will ask if a pre-heat cycle is needed for the joint. If fusion will be performed where pipe temperatures are outside the range of 60 - 90 degrees F, please consult Orion Fittings Technical department at (910) 865-7530 before proceeding. All other fusions should be performed using the STANDARD cycle, which is selected by pressing the START button.

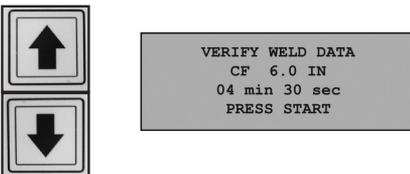


Fusion cycle type selection screen

Step 8

Verifying Welding Parameters

The screen will display "VERIFY WELDING PARAMETERS" and an audible beep will sound to indicate the fusion unit is ready to begin welding. Verify the welding data displayed on the screen matches the joint being fused. If the information is incorrect, press the STOP/BACK button to return to any of the menu options to correct the fusion parameters. Once the parameters have been verified, press START to begin the fusion weld.



Fusion cycle type selection screen

Step 9

Successful Weld Completion

After pressing START, the Rionfuser™ will begin the weld. After the welding cycle has completed, another audible beep will sound to indicate that the fusion weld is complete. If the beeping pattern is an equal, consistent beeping, the joint was successful. If the beeping pattern is irregular, it indicates that an error has occurred during the fusion cycle (if an error code is received during fusion, please contact your local Orion rep for troubleshooting information). Once the joint is completed, the lead cables can be removed and the process repeated for the next joint.

To download completed fusion data, please see our IOM-OR-RIONFUSE 2128 for instructions.

NOTICE

Do not stress newly-fused joints until fully cooled to ambient, typically 10-20 minutes depending on size. Successful weld completion screen does not eliminate need for system leak testing.

Successful weld completion screen

**DISCONNECT
OUTPUT LEADS
WELD COMPLETED
Successfully**

POLYPROPYLENE RIONFUSE CF COUPLING

Pipe Size <i>in.</i>	Fusion Time <i>min.</i>	Fusion Current <i>amps</i>
1 - ½	2:00	8.25
2	2:00	8.25
3	3:00	14.25
4	3:00	14.25
6	4:30	19.00
8	4:45	19.00
10	7:20	17.00
12	8:00	16:50

PVDF RIONFUSE CF COUPLING

Pipe Size <i>in.</i>	Fusion Time <i>min.</i>	Fusion Current <i>amps</i>
1 - ½	2:00	8.25
2	2:00	8.25
3	3:00	14.25
4	3:00	14.25
6	4:45	18.00

MULTIPLE JOINTING RIONFUSE CF

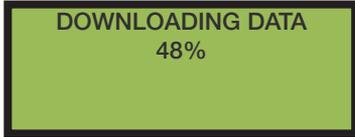
Pipe Size <i>in.</i>	Maximum number of couplings <i>num.</i>
1 - ½	4
2	3
3	3
4	2
6	1
8	1
10	1
12	1

Downloading to a USB Flash Drive

Fusion data from an RF-3000LE USB or Rionfuser™ LT Electrofusion Processor is downloaded onto an external USB flash drive. The data is output in a binary format that is compatible with a free macro-enabled Excel Spreadsheet available from Orion Engineering Department.

To download fusion data from the processor to a USB flash drive, perform the following steps:

1. Turn On the processor and allow it to proceed through the INTERNAL SELF TEST until it reaches the CONNECT LEADS screen.
2. Plug a formatted USB flash drive into the USB host connector on the face of the processor.
3. The USB flash drive will be detected automatically, and the fusion data will be written to the drive.
4. A progress screen similar to the following will be displayed as the download proceeds:



5. After the download is complete, the processor will return to the CONNECT FITTING screen. You may now disconnect the USB flash drive from the USB Host Port to resume normal operation.

NOTE:

*Only new fusions performed since the last download will be written to the drive.
The USB flash drive must be formatted using FAT or FAT32 with a sector size of 512 bytes.*

Rionfuser™ LT

The **Rionfuser™ LT Electrofusion Processor** has a 9 pin D-sub connector instead of a USB host connector. To download fusion data from a **Rionfuser™ LT Electrofusion Processor** onto a USB flash drive, you will need a USB to Serial Port adapter. This adapter is available for purchase from WATTS. One adapter may be used with multiple processors.

The pictures below show a 9 pin D-sub connector and the installed adapter for your reference.



Downloading Wirelessly

Fusion data from an **RF-3000LE Bluetooth® Electrofusion Processor** is downloaded wirelessly through the EF Utilities app. Once data has been downloaded, it can be viewed at any time with a smart phone, tablet, or computer.

To download fusion data from the processor to the EF Utilities app, perform the following steps:

1. Turn ON the processor and allow it to proceed through the INTERNAL SELF TEST until it reaches the CONNECT LEADS screen.
2. Open the EF Utilities app on your smart phone or tablet and select, "Connect to EF Machine."
3. Follow the download instructions in the app.

All progress indications and user feedback are communicated through the EF Utilities app which is available on iOS and Android app stores. To set up an account and register your EF processor(s), contact EF Technologies.

POWER SOURCES

When installing electrofusion fittings in field applications, it is necessary to have a reliable source of AC power for the processor. This AC power source should:

- be well maintained and subjected to a periodic maintenance schedule.
- provide output voltage within the specified operating range.
- contain a matching outlet, which is required to connect with the plug equipped on the processor.

Utility Power

Utility power is a reliable and ideal power source for the **Rionfuser™ Electrofusion Processor**. However, it is not practical to gain access to this kind of power source in field applications. When fusing with utility power, a dedicated connection to the service panel is recommended because the potential amperage draw is very high.

Generators

Fuel powered generators are also a good source of electrical power for the **Rionfuser™ Electrofusion Processor**. Always make a note of the minimum fitting power requirements. Additional power capacity is recommended for intangibles (i.e. powering other accessories, wear & tear, etc.). Before starting a fusion, it is important to make sure:

- the generator has enough fuel to complete the electrofusion cycle.
- the auto-throttle is disengaged (in anticipation of immediate power draw).

Inverters

Inverters are an acceptable AC power source for the **Rionfuser™ Electrofusion Processor**, though some produce output waveforms that are troublesome with specific fittings. We recommend performing compatibility tests using the lightest and heaviest anticipated loads before approving an inverter system. Feel free to contact us to discuss issues regarding the use of inverters.

Power Specifications

Supply Voltage	97 VAC to 150 VAC
Supply Frequency	47 Hz to 70 Hz
Supply Waveform	Sine Wave or Square Wave
Output Current	20 Amps AC
Output Voltage	95 volts AC at 120 Volts Input

Extension Cords

Because electrofusion fittings produce a high amperage draw, the use of an extension cord is not encouraged. In the event such usage is necessary, the following lengths and wire gauges are recommended:

Cord Length	Wire Gauge
Less than 25 feet	12/3
Less than 50 feet	10/3
Less than 100 feet	8.3

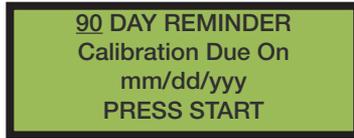
Extension cords should not be used when fusing multiple fittings at the same time.

Calibration Warnings

****This section applies to the RF-3000LE Electrofusion Processor only.**

Rionfuser™ Electrofusion Processors are programmed to provide operators with plenty of time to schedule a calibration. However, if the **RF-3000LE Electrofusion Processor** reaches its calibration due date, it will stop fusing until it has been calibrated.

When the calibration due date is within 90 days or less, the processor will display reminders whenever the machine is powered on. The calibration reminder will look similar to this:



The processor will countdown the number of days until calibration is due. The text mm/dd/yy shows the month, day, and year that the calibration is due.

To avoid being locked out of the processor, WATTS recommends scheduling a calibration as soon as it starts to display this reminder message.

On the date that calibration is due, the processor will display, "Error 113: Calibration Required," and stop fusing until it is calibrated.

When the RF-3000LE Electrofusion Processor displays Error 113, it will not fuse until it has been calibrated.

To schedule a calibration, please see page 2 for instructions and contact information.

General Maintenance

Changing the Fuse

**** This section applies to the RF-3000LE Electrofusion Processor only. The Rionfuser™ LT Electrofusion Processor has no external fuse that can be changed.**

Important Notes

- The fuse protects the internal electronic circuitry. If the display lights up when power is turned on, you DO NOT need to replace the fuse.
- This procedure should be performed in a "shop" environment, never a "field" environment.
- The most probable cause of fuse failure is a defective or inappropriately sized generator. If you have a fuse problem, check your generator first.

Tools Required

- 1/8" Flat Blade Screwdriver
- 5 x 20mm, 250V, 2 Amp Slow Blow Fuse.

Use a Cooper Bussman Fuse Part Number BK1/S506-2-R or equivalent.

Procedure

1. Insert a screwdriver into the slot in the fuse holder cap. Press in slightly while turning counter-clockwise, then remove the cap. The fuse should come out when the cap is removed.
2. Remove the old fuse and replace it with the new one.
3. Replace the fuse cap by pushing down and turning it clockwise.

NOTICE

Inquire with governing authorities for local installation requirements.

Warranty: Our products are carefully inspected for manufacturing defects. However, it is not always possible to detect hidden defects. Our products are warranted only to the extent that we will replace them without charge if they are proved to have manufacturing defects within one year of the date of delivery to the site where they are to be used, or installed, and provided we have been given an opportunity to inspect any product alleged to be defective and the installation or use thereof.

NO WARRANTY IS INCLUDED AGAINST ANY EXPENSE FOR REMOVAL, REINSTALLATION OR OTHER CONSEQUENTIAL DAMAGES ARISING FROM ANY DEFECT. THE WARRANTIES SET OUT ABOVE ARE THE ONLY WARRANTIES MADE AND ARE EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

The logo for ORION, featuring the word "ORION" in a bold, blue, sans-serif font. The letter "O" has a white starburst effect on its top-left corner. A registered trademark symbol (®) is located at the top right of the word.

A WATTS Brand

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