

Acu-Tech EFD160 Electrofusion Drainage Welder - Operating Manual

Model EFD160



The Acu-Tech EFD160 Electrofusion Drainage Welder contains an impressive array of functionality and versatility. Utilizing decades of experience, these welders have been developed and built in Germany, incorporating a light-weight design with excellent performance. The EFD160 is the perfect choice for plumbers installing HDPE drainage pipe systems using electrofusion drainage fittings.

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1. Introduction

This product is designed exclusively for jointing PE discharge lines assembled with electrofusion fittings.

This product has been checked for operation, reliability and that the safety features are functioning correctly. In the event of errors of handling or misuse however, the following may be exposed to hazards:

- The operator's health,
- The product and other hardware of the operator,
- The efficient operation of the product.

All persons involved in the installation, operation, maintenance, and service of the product must be properly qualified, and be able to operate the product when required. All persons involved with the welding process should carefully read and conform to this User Manual before working with the product.

2. Safety Requirements

Improper Use of the Welding and Power Supply Cables

Do not carry the product by one of its cables and do not pull the power cord to unplug the unit from the electrical socket. Protect the cables against heat, oil, and cutting edges.

Securing the Fitting and the Joint

Use appropriate clamps to secure the fitting and the joint before welding. The welding unit is intended exclusively for indoor installation applications and is not to be used for buried pipeline construction.

Cleaning the Welding Unit

The product must not be sprayed with or immersed in water. First unplug the unit, then use a damp cloth to clean the exterior of the unit, cords and feet. Ensure the product has dried before turning it on again.

Checking for Damage

Before operating the product every time, carefully check safety features and any existing parts with minor damage, for intended and proper function. Ensure that the push-on connection terminals work properly, that contact is fully established, and that the contact surfaces are clean.

All parts must be installed correctly and properly conform to all conditions in order for the operator to be sure that the product will work as intended. Damaged safety features or functional parts should be properly repaired or replaced by a qualified organization/service shop.

Caution: The cover of the product may be removed only by Acu-Tech Piping Systems personnel, or of a partner organization properly trained and approved by the manufacturer.

Mains Power Supply

Utility suppliers' wiring requirements, occupational safety rules, national codes including Australian standards, regulations, and local or state laws must be respected.

Caution: When using power distributions on the worksite, rules for the installation of earth-leakage circuit breakers (RCD) must be respected, and operation requires an installed breaker.

Mains power fuse protection should be max. 10 A.

The product must be protected against rain, humidity, puddles of water or other fluids. Any extension cords used should be deemed suitable for this welder in accordance with the technical information in this operating manual, in accordance with site or company standards, and in accord with electrical standards.

3. Operation

The Acu-Tech EFD160 welding unit allows welding electrofusion fittings to join PE discharge lines routed indoors, of the make Geberit, Akatherm-Euro, Coes, Valsir, Waviduo, Vulcathene-Euro, and others.

The microprocessor-controlled unit;

- Controls and monitors the welding process in a fully automated fashion,
- Determines welding duration depending on ambient temperature,
- Indicates all information with three LEDs and a seven-segment display screen.

1. Turning the Welding Unit On

After connecting the power supply cord to 230 V mains power, turn the welding unit on at the on/off switch. The unit then performs an auto-test. All three LEDs light up briefly and simultaneously to indicate that the unit is ready for operation. Furthermore, the seven-segment characters show the welding mode “HDD” for approximately 1 second. After this, both the LEDs and the screen characters go off again.

2. Connecting the Electrofusion Fitting

Insert the connection terminals into the fitting and check for proper fit. The contact surfaces of the connection terminals and the fitting must be clean. Dirty terminals may lead to improper welding and also to overheated and fused terminal plugs.

After the fitting is connected, the yellow LED (fitting connected) lights up. At the same time, the screen displays the welding time. The welding process can now be started by pressing the START key.

The welding time is counted down from about 80 seconds.

3. Welding Process

The welding process is monitored for its entire duration, applying the welding parameters computed for the electrofusion fitting.

4. End of Welding

The welding process has been completed successfully if the actual welding time is 0 s (“000” on the display screen), the green LED (end) lights up at that point, and the audible signal beeps twice.

5. Aborted Welding

The welding process has caused errors if the red LED (fault) is on, and the audible signal beeps intermittently. Additionally, an error code is displayed on the screen. See Section 4 for more detail.

An error must be acknowledged by pressing the STOP key.

6. Cooling Time

The cooling time as given in the fitting manufacturer’s instructions must be respected. Note that for the time that the pipe fitting joint is still warm, it must not be subjected to any external force, as this can easily result in the failure of the joint.

7. Returning to the Start of Welding

After welding is finished, disconnecting the cables from the fitting will cause the unit to return to the beginning of the welding process. An additional safety feature prevents the electrofusion fitting from being inadvertently welded twice: after a properly completed or an aborted welding operation, the welding unit must be first disconnected from the fitting, in order to proceed with the next weld.

4. Error Messages

Self-Monitoring Functions Overview

1. System Error (E00)

CAUTION: The welding unit must be disconnected immediately from the power supply and the fitting. The auto-test has found an error in the system. The unit must no longer be operated and must be sent to Acu-Tech Piping Systems or a partner company, approved by the manufacturer, for a check-up and repair.

2. Power Supply Failure (E01)

The last weld is incomplete. The welding unit was disconnected from the power supply. This error must be acknowledged by pressing the STOP key.

3. No Contact (E02)

There is no properly established electrical contact between the welding unit and the fitting (check the push-on terminal on fitting), or the fitting heater coil is defective.

4. Low Voltage (E03)

The input voltage is below 180 volts. Adjust the generator output voltage.

5. Overvoltage (E04)

The input voltage is above 280 volts. Adjust the generator output voltage.

6. Temperature Error or Temperature Sensor Defective (E05)

The measured ambient temperature is outside the operating range of the welding unit, (i.e. below -5°C or over $+40^{\circ}\text{C}$). Only use the product within its temperature limits. If this error is displayed during the unit's auto-test, the temperature sensor is defective.

7. Frequency Error (E06)

The frequency of the input voltage is out of tolerance (40 Hz - 70 Hz).

8. Low or Excess Current (E07)

This message is displayed if there is a momentary current failure or if the current regulator is defective.

9. Emergency Off (E08)

The welding process was interrupted by pressing the STOP key.

10. Used Fitting Error (E09)

After welding, the unit was not disconnected from the electrofusion fitting, and the user tried to weld the same fitting a second time. Welding processes must never be repeated with the same fitting, as this may cause live wires to be accessible to touch.

5. Technical Specifications

Specification:	Value:
Nominal Voltage:	230 V
Frequency:	40 Hz - 70 Hz
Power:	1200 VA, 80 % duty cycle
Ingress Protection:	IP 54
Primary Current:	Max. 10 A
Ambient Temperature:	-5°C to $+40^{\circ}\text{C}$
Max. Output Current:	5 A
Tolerances:	
Temperature:	$\pm 5\%$
Current:	$\pm 2\%$



If you wish to sell or dispose of your welder, or it is irreparably damaged, please get in touch with Acu-Tech Piping Systems to discuss options. Acu-Tech may be able to recycle some parts of a damaged welder, and thereby reduce landfill waste and damage to the environment.

6. Service and Repair

Maintenance and Repair

As the product is used in applications that are sensitive to safety considerations, it may be serviced and repaired only by the manufacturer or its duly authorized and trained partners. By stipulating this, consistently high standards of operation quality and safety are maintained.

Important: Failure to comply with this provision will release the manufacturer from any warranty and liability claims for the product, including any consequential damage.

When serviced, the unit is upgraded automatically to the technical specifications of the product at the time it is serviced, and we grant a three-month functional warranty on the serviced unit.

We recommend having the product serviced at least every twelve months.

Any provisions in the law pertaining to electrical safety inspections must be complied with.

Service and Repair Contact in Australia

Acu-Tech Piping Systems (Acu-Tech Pty Ltd)

Phone: 1300 270 270

Address: 119 Kelvin Rd, Maddington, Western Australia, 6109

Sales Email: sales@acu-tech.com.au

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Website: www.acu-tech.com.au

To book a welder service, go to this link: <https://www.acu-tech.com.au/service/>

For the latest operating manual version, go to this link: <https://www.acu-tech.com.au/efmanual/>