FRIAMAT 6 110V ELECTROFUSION PROCESSOR

PE ELECTROFUSION OPERATING MANUAL

PE ELECTROFUSION SYSTEMS

IPEX by aliaxis

FRIATEC

We build tough products for tough environments®

Friamat 6 110V Electrofusion Processor

PE Electrofusion Operating Manual

IPEX USA LLC hereinafter referred to as "IPEX".

TABLE OF CONTENTS

REVISION HISTORY

Revision	Date	Description	Author
Initial Release	2023/10/04	Initial release	AEC

1. ABOUT THIS DOCUMENT

1.1. Purpose of This Manual

The intent of this manual is to provide a guide for the operation of the FRIAMAT® 6 110V Electrofusion Processor. These instructions describe all the necessary work steps, measures and precautions to ensure safe and professional handling of the product.

Compliance with the information in this manual does NOT relieve the owner/operator of their responsibility to comply with all applicable codes and safety standards.

To provide feedback on the contents of this manual or request additional information please contact:

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10100 Rodney St, Pineville, NC 28134
1-800-463-9572
www.ipexna.com

This manual is intended for:

- Operators and owners
- Personnel that will transport, commission and operate the FRIAMAT 6

1.2. About These Operating Instructions

- Please read and understand these operating instructions before using the FRIAMAT 6.
- Observe all applicable documents.
- Retain this manual and all updated versions available at ipexna.com for the life of the FRIAMAT 6.
- Follow the recommended sequence of operations.

1.3. Symbols and Definitions

The following flags and symbols are used in this document:

WARNING

A WARNING describes a hazardous situation which, if not avoided, could result in **severe injury or death**.

CAUTION

A CAUTION describes a hazardous situation which, if not avoided, could result in **minor or moderate injury**.

NOTICE

A NOTICE indicates a hazardous situation which, if not avoided, may result in **system failure and property damage**.

INFO

An INFO symbol signifies special instructions which are important but are not related to hazards

1.4. Updates

The technical information contained in this document is reviewed regularly to make sure that it is up to date. The date of the last revision is specified in the Revision History on page iv.

Updated instructions are available online at:
https://ipexna.com/en-us/resources/document-re pository/friamat-6-operating-manual/

2. SAFETY

The FRIAMAT 6 is state of the art, built according to recognized safety standards, and equipped with the necessary protective devices. The FRIAMAT 6 has been tested for function and safety before delivery.
Incorrect operation or misuse may result in harm to the operator, material damage to the FRIAMAT 6, and a reduction in performance of the processor. **Carefully read this manual, including all warnings and cautions before proceeding and observe all safety instructions described in this manual.**

2.1. Emergency Procedure

- Turn the FRIAMAT 6 off using the main switch.
- Disconnect the FRIAMAT 6 from the power supply.

2.2. Owner Obligations

Make these instructions available to all personnel that will be handling the FRIAMAT 6.
Ensure that all personnel fulfill the following requirements:

- Personnel are trained in the proper handling and use of the FRIAMAT 6.
- Personnel have read and understood the instructions and safety information.

2.3. Operator Obligations

The operator is responsible for their own safety and the safety of any third party that is in the area of operation.

Before any fusion is performed, it is the responsibility of the operator to always verify that all the information displayed is correct per the fitting manufacturer's recommendations for fusing the attached fitting under the current ambient conditions.

Personnel working with the FRIAMAT 6 are required to know the following:

- The contents of these instructions
- Proper handling of the FRIAMAT 6 (after training)

2.4. Standards and Guidelines

The FRIAMAT 6 complies with the following standards and directives:

- ASTM F2897-21
- ISO 12176-2:2008 Electrofusion
- ISO 12176-3:2011 Operator badge
- ISO 12176-4:2003 Traceability
- ISO 12176-5:2021 Plastics pipes and fittings

2.5. Installation Site Safety

- Always protect the power cable and fusion cable against sharp edges.
- Do not stack heavy objects on top of the FRIAMAT 6.
- Never immerse the FRIAMAT 6 in water. (The FRIAMAT 6 is splash-proof.)
- Do not use or store the FRIAMAT 6 where volatile gas or combustible dust concentrations may be present.
- The FRIAMAT 6 and the power source should not be located in a trench.
- For protection against the risk of electric shock, connect the FRIAMAT 6 to properly grounded outlets only.
- Ensure that the FRIAMAT 6 has an adequate power supply based on the technical specifications in this manual.

2.6. Designated and Intended Use

The FRIAMAT 6 is for use exclusively with fusion fittings made of 'High Density Polyethylene (HDPE) detailed below.

The FRIAMAT 6 has been designed for a maximum fusion voltage of 48 Volt and is intended exclusively for fusion of the following fittings:

- FRIALEN safety fittings with pressure pipes made of HDPE (SDR 7-17)
- FRIALEN large pipe technology with pressure pipes made of HDPE (SDR 7-17)
- FRIAFIT fittings with pipes made of HDPE (SDR 17-33)
- Fittings from other manufacturers with a barcode which fulfills one of the following requirements:
    - 24-digit (according to ISO 13950: 2007-03)
    - 2D barcodes (according to ISO 12176-5:2021)
    - 16-digit (according to ASTM F2897-21, Tracking and Traceability)
    - 30-digit (according to ISO 12176-3:2011)

The FRIAMAT 6 has been designed only for industrial applications. It may be powered from a generator of the power grid.

Operators must comply with the following instructions:

- Notes and information contained in these operating instructions
- Power specifications and technical data of the fusion FRIAMAT 6
  (Refer to Section 17. Technical Data)
- Power specifications and technical data for the fittings which are to be fused
  (Refer to Section 17. Technical Data)
- Fusion fittings manufacturer general and specific workmanship and processing provisions and regulations
- All country-specific standards, laws, guidelines and directives and regulations on accident prevention, environment, disposal and safety
- Gas company safety standards and precautions

2.7. Prohibited Uses

Do not use:

- Damaged FRIAMAT 6s
- FRIAMAT 6s whose lead seal has been broken open
- Fittings without a barcode
- Generators which do not comply with the Electromagnetic Compatibility (EMC) regulations as per section 2.7 of this manual

2.8. Bluetooth® Function

The FRIAMAT 6 is equipped with a Bluetooth interface. Use of the Bluetooth interface is currently only permitted in the following countries:

- U.S.A.
- Canada
- Mexico

2.9. Structural Alterations and Spare Parts

Conversions, alterations and modifications to the FRIAMAT 6 are not permitted for safety reasons. All warranty claims will become invalid for the FRIAMAT 6 whose lead seals have been broken or altered for safety reasons and will void the warranty.

2.10. Power Supply

2.10.1. Ground Fault Protection

- When using outdoors: Equip the plug sockets with a Ground Fault Circuit Interrupter (GFCI).
- Follow all regulations regarding the GFCI.

2.10.2. Generator Operation

Always ensure that the generator is approved for commercial use and applications on construction sites.

- Only use generators which operate at frequencies within the range of 44 – 66 Hz.
- Always follow the generator operating instructions.
- Use a minimum of a 30 A time delay fuse as the generator fuse/mains supply fuse.
- Never operate with any additional loads on the same generator during fusion.

Nominal generator power

The required nominal generator power always depends on the following factors:

- Power requirement for the largest fitting used
- Connection conditions
- Environmental circumstances
- Generator type and/or its regulating and control characteristics

NOTICE Although a generator may have the correct outputs in relation to this manuals technical data sheet, the operation of the Friamat 6 cannot be guaranteed.

2.10.3. Extension Cords

Always make sure that the extension cord's cross-section is sufficient for the respective application.

Extension Cord Length	Cord Cross-Section
Up to 100 feet	AWG 10/3
Up to 200 feet	AWG 8/3

Make sure that the extension cord is unwound and stretched out before use.

2.11. Risks

2.11.1. Energized Parts

Electric shock may be caused by contact with energized parts.

- Do not open the FRIAMAT 6.
- Never leave the FRIAMAT 6 unattended during the fusion procedure.
- Always have any housings, connecting cables and extension cords, which indicate damage, exchanged immediately. Do not continue to operate the FRIAMAT 6 in such cases.
- Always disconnect the main power supply before performing any repair work or maintenance work.
- All servicing, maintenance, and repairs must be performed by an authorized service center. (Refer to Section 19. Authorized Service Centers).
- Only connect the FRIAMAT 6 to the approved operating voltage which is specified on the rating plate.
- If required, provide a Ground Fault Circuit Interrupter (GFCI).
- Never remove, bridge or disable safety devices.
- Remedy any detected faults immediately.

2.11.2. Fire and Explosion Hazard

Fire hazard and explosion hazard may be caused by ignition of highly flammable materials or explosive atmosphere.

- Always keep the FRIAMAT 6 away from flammable liquids and gases.
- Never use in potentially explosive atmospheres where flammable gases, solvent vapors or combustible dusts can occur.
- Never leave the FRIAMAT 6 unattended during the fusion procedure.

2.12. Property Damage

Dust, dirt and moisture can damage sensitive parts on the FRIAMAT 6:

- Always protect the scanner lens against dirt and scratches.
- Make sure that the protective cap for the data interface is securely in place.
- Do not drop the FRIAMAT 6.

3. Quick Start

- Read the user's manual.
- Keep the FRIAMAT 6 out of the trench and protect it from inclement weather.
- Establish a safe working environment (Refer to Section 2. Safety).
- Lay out all the needed tools, accessories, and fitting(s).
- Plug in and turn on (Refer to Section 2.11. Power Supply and Section 11. Powering On and Off).
- Perform initial commissioning (Refer to Section 7. Initial Commissioning).
- Turn on Bluetooth and pair phone (Refer to Section 8.4. Bluetooth® Operation).
- Conduct fusion (Refer to Section 12. Fusion Procedure).
- Review and address any error messages (Refer to Section 13. NOTICE Error Messages).
- Cool down and turn off the FRIAMAT 6 or do another fusion.
- Store the FRIAMAT 6 properly (Refer to Section 14. Transport and Storage).

4. PRODUCT DESCRIPTION

4.1. Component Location

Figure 1. FRIAMAT 6 110V Electrofusion Processor

Position	Designation
1	Main switch
2	Cables (combined fusion, scanner, and temperature probe cables)
3	Control panel with display and function keys
4	USB data interface with protective cap
5	Ventilation air outlet
6	Adapter storage pouch
7	Power cord
8	Ventilation air intake

Table 1. Component Location

4.2. Scanner

The scanner reads component barcodes. Two scanners are available:

- The included mini-scanner reads 1D barcodes.
- The optional 1D/2D scanner reads 1D barcodes and 2D barcodes according to ISO 12176-5:2021.

4.3. Temperature Probe

The temperature probe located on the fusion cable records the ambient temperature during the fusion process. The FRIAMAT 6 can determine the fusion time in conjunction with the fitting parameters.

4.4. USB Data Interface with Protective Cap

The USB data interface serves as a service interface for software updates and for data transfer with the FRIAMAT 6. The cap protects the USB data interface against dirt and moisture.

4.5. Fan

The fan provides cooling to enable reliable operation and working conditions when in continuous use, and when fusing large dimension fittings. The fan will automatically switch on and off based on the temperature detected inside the FRIAMAT 6.

The fan will switch on at the following times:

- High-temperature detection after the FRIAMAT 6 has been switched on
- During fusion
- Between fusions
- After fusion

Always leave the FRIAMAT 6 switched on after a fusion so that the fan can reduce the temperature of the fusion unit. This applies in particular to series fusions, machining or processing of fittings with high power requirements.

4.6. Rating Plate

The rating plate is located on the top of the FRIAMAT 6, below the carrying handle. It contains the following details:

- Device-specific information regarding the FRIAMAT 6
- Unique FRIAMAT 6 number

4.7. Control Panel

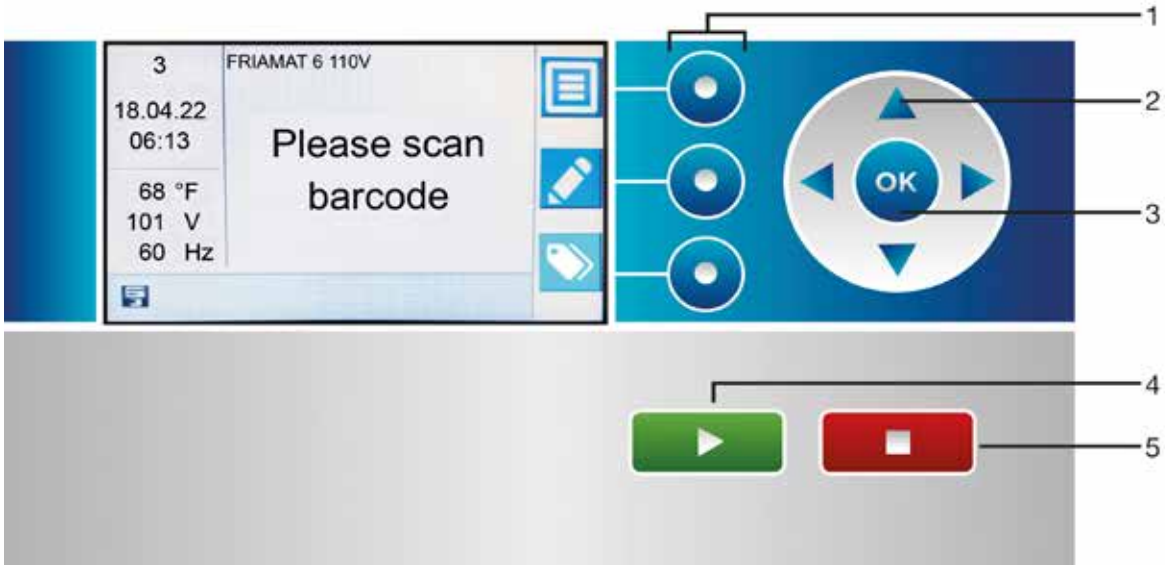


Figure 2. Control Panel

Position	Designation	Description
1	Function keys	Access functions shown on the display.
2	Direction keys	Move the cursor left, right, up and down.
3	OK key	Confirm the function.
4	START key	Start the fusion process/ Confirm the messages that are shown on the display.
5	STOP key	Abort the fusion process/ Exit the menu item/ Abort an input procedure (without saving).

Table 2. Control Panel Operation

4.8. Display

4.8.1. Display Layout

Figure 3. Display Layout

Position	Designation	Description
1	Status indicators	Indicates features which are turned on/ Notice for next maintenance
2	Display for environmental information	Date, time, ambient temperature, voltage and frequency
3	Number of protocol entries	Indicates the current number of protocol records for fusions
4	Main window	All entries and information within the individual menus
5	Function icons	Icons for functions which will be activated when the adjacent control panel function keys are pushed. The displayed icons will change based on menu selection (Refer to Table 4. Function Icons and Descriptions).

Table 3. Display Layout Details

4.8.2. Function Icons

Icon	Designation	Description
	MENU	Call up the main menu
	ENTRY INPUT/ MANUAL INPUT	Call up a virtual keyboard Manual input possible for a barcode that cannot be read
	ID DATA	Calls up the input screen for: • ID Data • Picking and Sorting number • Seam number • GPS Data
	CONFIRMATION	According to the context involved: • OK • Confirm • Acquire • Save • Select a menu item
	ABORT	• Terminate an input procedure • Close a dialog without saving
	BACK	Directly back to MENU with one click
	CONTINUE	Continue with a process, next step, or next input
	DELETE BACK	Delete the previous character (manual barcode entry)
	RECYCLING BIN	Delete the picking and sorting number
	INFORMATION DATA	Calls up the information data screen, and entering information text Enter information text, comment and subcontractor
	DETAILS/SEARCH	Calls up detailed information, or search screen (e.g. Country of operation)

Table 4. Function Icons and Descriptions

4.8.3. Status Indicators

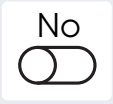
Symbol	Description
	Documentation "ON"
	Seam number data collection on
	Traceability barcodes data collection on
	Pipe number data collection on
	Pipe length data collection on
	USB connected
	Maintenance appointment Notice for the next maintenance due (days)
	FRIAMAT 6 is paired via Bluetooth

Table 5. Status Indicators

5. OPERATION

5.1. Functional Description

The fitting parameters are transmitted to the FRIAMAT 6 by scanning the barcode on the fitting. Based on this data, the microprocessor-controlled FRIAMAT 6 is able to regulate and control the energy metering completely automatically, and determine the fusion time, taking into account the ambient temperature.

5.2. FRIAMAT preCHECK Function

Fusion (standard procedure)

Before each fusion, the FRIAMAT 6 will execute the FRIAMAT preCHECK function. The FRIAMAT 6 uses the fitting parameters, the current FRIAMAT 6 status and the ambient temperature in order to calculate whether the next fusion can be completed without interruption.

The fusion can only be started after the FRIAMAT preCHECK function is complete. Performance-related fusion interruptions are therefore prevented.

For all single-phase fusions, the FRIAMAT preCHECK function should be switched on.

5.3. Multi-phase fusion with 2D barcodes (ISO 12176-5:2021)

Multiple-phase fusion is defined as 2 to 9 fusion phases being completed on one fitting/component without a break. This feature may be used when multiple fusion phases, each with its own fusion voltage and time, are to be performed on the same fitting, i.e. pre-heating, heat soak and fusion.

A single 2D barcode can contain the data for a multi-phase fusion. All phases of the multi-phase fusion can be executed without rescanning the 2D barcode.

For multi-phase fusions the FRIAMAT preCHECK function should be switched off.

INFO

Fusion termination during multiple-phase fusion will happen if the FRIAMAT 6 overheats, without the FRIAMAT preCHECK function, at very high continuous power. The fusion process is interrupted by the FRIAMAT 6 in order to prevent damage to the FRIAMAT 6 due to overheating. In this case, the fusion process is not complete. The fusion process must be repeated after the fusion joint has cooled down again completely.

- Only use the FRIAMAT 6 in a cooled down state in order to reduce the likelihood of the processor prematurely terminating the fusion process due to overheating.
- Always follow the fitting manufacturer's processing and machining instructions when repeating fusion processes.

5.4. Acoustic Signals

The FRIAMAT 6 confirms certain operating sequences with an audible tone.
These tones have the following meanings:

Number of Audible Signal Tones	Meaning
One Tone	Barcode scan is successful
Two Tones	Fusion process is complete
Three Tones	Voltage supply is too low or too high
Five Tones	Read the error message on the display

Table 6. Audible Tones and Descriptions

The signal tone volume can be set in the main menu (Refer to Section 8.1.5. Set Signal Tone Volume).

6. USER MENU

Call up the user menu via the menu function button.

6.1. Menu Tree

Some individual menu items may not be visible due to the settings.

Menu	Level 1	Level 2	Level 3	Reference
Main Menu				
	Basic Settings			
		Documentation		Switch On/Off documentation
		Date and Time		Set the date and time
		System Language		Select the system language
		Protocol Language		Select the protocol language
		Volume		Set the signal tone volume
		Bluetooth		Switch On/Off Bluetooth
		Country of Operation		Select country of operation
		Update		Install software update
		Factory Settings		Reset the FRIAMAT 6 to factory settings
	Fusion Sequence [1]			
		Operator Pass [1]		Switch On/Off FRIAMAT 6 disabling function
		Traceability		
			Traceability Active	Traceability active
			Pipe Number	Pipe number
			Pipe Length	Pipe length
			Fitting ID	Fitting ID
		Information Data		
			Information Text	Information text
			Comment	Comment
			Scraper Device	Scraper device
			Subcontractor	Subcontractor
		ID Data		
			Sorting and Picking Number	Sorting and picking number
			Seam Number	Seam number
			GPS Data	GPS data
	Data [1]			
		Transmit		Transmit data
		Delete		Delete data

Menu	Level 1	Level 2	Level 3	Reference
	Information			
		FRIAMAT 6 Information		View FRIAMAT 6 information
			FRIAMAT 6 Number	
			SW HMI	
			SW PU	
			Maintenance Appointment	
		FRIAMAT 6 Function		
		Licenses		
Menu Emergency Entry				Enter barcode digits manually (Emergency entry)
ID Data Menu				
	Sorting and Picking Number			Enter ID data
	Seam Number			
	GPS 1-3			

1) Only visible when documentation is switched on and initial data record is saved.

6.2. Menu Navigation

In this manual, menu navigation instructions are shown in the following format:

[Menu] > [Name of menu item]

6.2.1. Menu Navigation Example

Instructions:

1. Call up the menu item:
   - Main Menu > Basic Settings > Date and Time

Procedure:

Follow these steps to navigate to Date and Time:

1. On the illuminated control panel, push the MENU button.
   NOTE: The Main Menu will be displayed.
2. Using the arrow keys, navigate to Basic Settings and push OK.
   NOTE: The menu items under Basic Settings will be displayed.
3. Using the arrow keys, navigate to Date and Time and push OK.
   NOTE: The Date and Time menu will be displayed.

6.3. Operation Menu

6.3.1. Entering Data Via the Virtual Keyboard or Numeric Keypad

1. Select numbers or letters from the displayed numeric keypad or keyboard with the direction keys (Refer to Section 4.8.2. Function Icons).
2. Confirm entry with the OK key.

6.3.2. Entries or Settings

Save Entry/Amendment	Push Confirmation function key
Abort Entry/Amendment	Push Abort function key
Delete Digit(s)	Push Back/Delete function key
Exit Menu/Cancel Procedure	Push STOP or Back key

Table 7. Entries

7. INITIAL COMMISSIONING

7.1. Set the Basic Settings

1. Turn the FRIAMAT 6 on with the main switch.

2. In the Main Menu > Basic Settings, set the following settings (Refer to Section 8.1. Basic FRIAMAT 6 Settings):

- System Language
- Protocol Language
- Country of Operation

3. Scan the QR code with a smartphone to complete the initial commissioning process (Refer to Section 7.2. Activate the FRIAMAT 6).

INFO

All settings can be changed at any time. Go to Main Menu > Basic Settings > Menu item.

INFO

Aborting the activation

Activation can be skipped with the abort key and performed at a later time. The prompt message will appear each time the FRIAMAT 6 is turned on until the unit is activated.

7.2. Activate the FRIAMAT 6

INFO

The email address, which has been entered in the activation dialog of the FRIAMAT 6, will be used and stored by Aliaxis Deutschland GmbH in order to send information about the availability of new software updates and FRIAMAT 6 updates to the owner of the email address easily and quickly.

- Please enter a valid email address.

Prerequisites

- Internet-capable input device e.g. smartphone or PC.
- External App for capturing QR codes when a smartphone or tablet is used and the operating system is more recent than Android Version 9.0/Apple iOS 11.
- The activation dialog is open on the FRIAMAT 6 display.

1. Navigate to the activation page on an Internet-capable input device:

Via QR Code:

- Capture the QR Code with a smartphone camera.
- Tap on the displayed URL Link on the smartphone.

Via browser on a smartphone or PC:

- Enter the following URL in the browser: https://portal.aliaxis.de/portal/en

2. Enter the FRIAMAT 6 number, company and email address in the activation page.

INFO

The FRIAMAT 6 number can be found on the rating plate or in the Main Menu > Information > Device Information > Device Number.

3. Confirm the entries.

4. A 4-digit activation PIN will be sent to the specified email address.

5. Enter the 4-digit activation PIN in the FRIAMAT 6 activation dialog.

INFO

When changing owners

Always inform the new owner about the update options and the use of the FRIAMAT Software Update module in the WorkFlow Web at https://ipexna.com/en-us/solutions/pe-electrofusion-solutions/gas-systems/workflow-app/

- In writing, always inform IPEX USA LLC about the change of ownership.
- Reset the FRIAMAT 6 to factory or default settings (Refer to Section 15.5. Resetting the FRIAMAT 6 to Factory Settings) and delete fusion data (Refer to Section 9.1.5. Delete Data) when necessary.

7.3. FRIAMAT 6 Registration

The FRIAMAT can be registered via the WorkFlow Web of IPEX USA LLC (www.ipexna.com/portal).

The FRIAMAT 6 will not be activated during registration and no activation PIN is generated. In order for the activation PIN to be generated, the FRIAMAT 6 needs to be commissioned as detailed in Section 7.2.

INFO

The following terms and conditions can be viewed at:

- General Terms and Conditions of Use and Data Protection Notice for the Customer Portal https://portal.aliaxis.de/portal/content/en/general-terms-and-conditions-1329847
- Special Terms and Conditions of Use for the FRIAMAT Software Update module https://www.aliaxis.de/en/metanavigation/agb/special-terms-of-use-softwareupdate

8. FRIAMAT 6 SETTINGS

8.1. Basic FRIAMAT 6 Settings

8.1.1. Select the System Language

1. Call up the menu item:
   - Main Menu > Basic Settings > System Language
2. Select the language from the displayed list.

8.1.2. Select the Protocol Language

1. Call up the menu item:
   - Main Menu > Basic Settings > Protocol Language
2. Select protocol language from the list.

8.1.3. Select Country of Operation

1. Call up the menu item:
   - Main Menu > Basic Settings > Country of Operation
2. Select a country from the list for where the FRIAMAT 6 is being used.

8.1.4. Set the Date and Time

1. Call up the menu item:
   - Main Menu > Basic Settings > Date and Time
2. Enter the date with the virtual keyboard.
3. Enter the time with the virtual keyboard.

8.1.5. Set Signal Tone Volume

1. Call up the menu item:
   - Main Menu > Basic Settings > Volume
2. Set signal tone volume to loud or quiet.

8.2. View FRIAMAT 6 Information

Information about the FRIAMAT 6 is displayed under information via the following menu items:

Menu Item	Display
FRIAMAT 6 Information	• TYPE • FRIAMAT 6 NUMBER • SW HMI • SW PU • MAINTENANCE APPOINTMENT
FRIAMAT 6 Function	• FRIAMAT 6 functions • Functions which the FRIAMAT 6 is prepared for
Licenses	• License information

8.3. FRIAMAT 6 Disabling and Enabling (Operator Pass)

All fusions performed after an operator pass is scanned will be saved under the code of the operator pass. When a new operator pass is scanned, the FRIAMAT 6 will switch over accordingly.

The FRIAMAT 6 is equipped with manual and automatic device disabling features to protect it against unauthorized use:

- **Manual disabling (operator pass)**

  When operator pass device disabling is on, the FRIAMAT 6 can only be used after a valid operator pass is scanned. Scanning the same operator pass again signs out the operator and disables the FRIAMAT 6.

- **Automatic disabling**

  The FRIAMAT 6 will be automatically disabled at 12:00 AM when an operator pass is signed in.

  When the FRIAMAT 6 is disabled the following message appears in the display:

  "!!! ALWAYS READ IN A VALID OPERATOR PASS!!!".

8.3.1. Operator Pass (ON/OFF)

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Operator Pass
2. Turn ON or OFF.

If the operator pass is ON, the FRIAMAT 6 can only be unlocked by scanning in the operator pass.

8.3.2. Enable the FRIAMAT 6

1. Scan the operator pass.
   - The valid operator pass will be shown in the display.
2. Confirm the details and information in the display with the confirm function key.

8.3.3. Disable the FRIAMAT 6 Manually

1. Scan the current operator pass.
   - The “DISABLE DEVICE?” query will be shown.
2. The following actions are possible:
   - Confirm the query: Press confirmation function key.
   - Abort procedure: Press abort function key.

8.4. Bluetooth® Operation

The FRIAMAT 6 is equipped with a Bluetooth interface. The Bluetooth interface allows connection to a smartphone with the WorkFlow app installed. For more information on the WorkFlow app, please refer to https://ipexna.com/en-us/solutions/pe-electrofusion-solutions/gas-systems/workflow-app/

Use of the Bluetooth interface is currently only permitted in the following countries:

- U.S.A.
- Canada
- Mexico

INFO

The Bluetooth menu item is only visible when it is permitted in the selected country of operation.

8.4.1. Turn Bluetooth ON/OFF

The Bluetooth function is turned off as a default.

1. Call up the menu item:

Main Menu > Basic Settings > Bluetooth

2. Bluetooth function can be turned ON/OFF.

8.4.2. Pairing a Smartphone

Prerequisites

- Bluetooth is on (Refer to 8.4.1).
- The WorkFlow App is installed on the smartphone.
- The FRIAMAT 6 is in input mode (Refer to Figure 4).

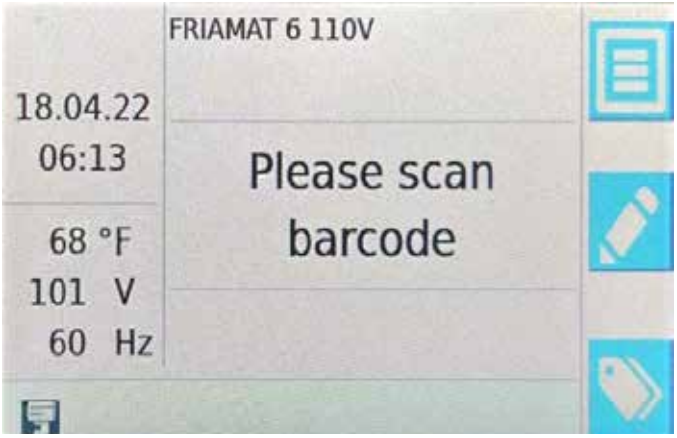


Figure 4. FRIAMAT 6 in Input Mode

1. Start the WorkFlow App.
2. Start pairing in the App.
3. When initially pairing with the smartphone:
   Enter the 6-digit PIN code in the smartphone within 30 seconds, which will be subsequently shown in the display of the FRIAMAT 6 (Refer to Figure 5).

Figure 5. Ready for Bluetooth Pairing

4. Successful pairing will be confirmed by:
   - 2 Short acoustic signals

When Bluetooth is paired with a smartphone, the following indicator will appear in the display:

- The paired smartphone will be displayed in the Coupled Bluetooth devices list.

8.4.3. Manage Paired Bluetooth Devices

1. Call up the menu item:
   - Main Menu > Basic Settings > Coupled Bluetooth devices

All Bluetooth devices which were previously paired will be shown.

2. Delete Bluetooth devices from the list in order to prevent them from reconnecting with the smartphone.

8.5. Data Documentation Settings

Multiple types of data can be collected and stored in the FRIAMAT 6 to provide a documentation record of the fusions performed. The following settings can be used to turn this feature on and off and to define the types of data to be collected and stored.

8.5.1. Turn Documentation ON/OFF

1. Call up the menu item:
   - Main Menu > Basic Settings > Documentation
2. Turn Documentation ON/OFF.

When Documentation is on, the Fusion sequences and Data menus are visible, and this status indicator will appear in the display:

8.5.2. Traceability

The collection of traceability data during the fusion process can be defined in the traceability data menu item:

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Traceability > Traceability Active
2. Turn Traceability ON or OFF.

When Traceability is on, this status indicator will appear in the display:

8.5.2.1. Pipe Number

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Traceability > Pipe Number
2. Turn ON/OFF the query for an individual pipe number for the pipe which is to be fused.

   When the pipe number function is on, this status indicator will appear in the display:

8.5.2.2. Pipe Length

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Traceability > Pipe Length
2. Turn ON/OFF the query for an individual pipe length for the pipe which is to be fused.

   When the pipe length function is on, this indicator will appear in the display:

8.5.2.3. Fitting ID

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Traceability > Fitting ID
2. Turn ON/OFF the query for the fitting identification data.

   When Fitting ID function is on, the fitting ID will be shown in the display during the fusion process.

8.5.3. Information Data

The collection of information data during the fusion process can be defined in the information data menu item.

8.5.3.1. Information Text

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Information Data > Information Text
2. Turn ON/OFF the query for the information text.

8.5.3.2. Comment

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Information Data > Comment
2. Turn ON/OFF the query for a comment.

8.5.3.3. Scraper Device

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Information Data > Scraper Device
2. Turn ON/OFF the query for data (e.g. device number) for implemented scraper device.

8.5.3.4. Subcontractor

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Information Data > Subcontractor
2. Turn ON/OFF the query for the subcontractor.

8.5.4. ID Data

The collection of ID data in the ID data menu and during the fusion process can be defined in the ID data menu item.

8.5.4.1. Sorting And Picking Number

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Id Data > Sorting And Picking Number
2. Turn ON/OFF the query for the sorting and picking number.

8.5.4.2. Seam Number

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Id Data > Seam Number
2. Turn ON/OFF the query for the seam number.

8.5.4.3. GPS Data

1. Call up the menu item:
   - Main Menu > Fusion Sequence > Id Data > Gps Data
2. Turn ON/OFF the query for the GPS data.

9. WORKING WITH STORED DATA

9.1. Data Transmit

9.1.1. Output Formats

The following output formats are available:
CSV | JSON | PDF

9.1.2. Designating the Transmitted Data

Designating the Subdirectories

The data will be created in subdirectories on the USB stick according to the following pattern:

- F+Device number
- Example: FR 22 20 123
- Designating the subdirectories: F2320123

Designating the data

Data file names will be formed from the current date and a two-digit number counting up from 0.

Example:
2nd printout (02) on 30.10.2023 (2023_10_N02)
Designating the data: 2023_10_30_N02.PDF

9.1.3. Software for Additional Data Processing

Acrobat Reader® or equivalent may be used to read PDF files. Microsoft® Excel or equivalent may be used to read CSV files. Microsoft® Notepad may be used to read JSON files.

INFO

The Data menu is only visible when Documentation is switched on and a data record is saved.

9.1.4. Transmit Data

1. Call up the menu item:
   - Main Menu > Data > Transmit
2. Select which data should be transmitted via the export filter mask.
3. Select output format.
   - A request for connecting a USB stick on the USB connection port will appear in the display.
4. Connect a USB stick.
5. Press the confirmation function key. Export will be started.
   - A progress bar will be displayed.
   - The data will be written to a subdirectory in the selected output format.
6. If necessary, process the data further with appropriate software.

9.1.5. Delete Data

1. Call up the menu item:
   - Main Menu > Data > Delete Data
2. Delete individual or saved data.

10. SETUP AND CONNECTION

10.1. Preparatory Activities

Always ensure the following criteria before every use:

- The FRIAMAT 6 is undamaged.
- The planned fusion application corresponds to the intended use of the FRIAMAT 6.
- All parts are correctly assembled.
- All assembled parts fulfill all the conditions in order to ensure proper operation of the FRIAMAT 6.
- When using outdoors the FRIAMAT 6 must be protected against rain and moisture.
- The temperature probe on the fusion cable end piece, and the fitting which is to be fused, are both exposed to the same ambient temperatures.

  An unfavorable machining or processing situation example:
  - The fusion cable end piece (with temperature probe) is located in the sun, and the fitting is located in the shade.
- Input voltage corresponds to the input voltage range for which the FRIAMAT 6 is designed **(Refer to Section 17. Technical Data).**

10.2. Setting Up and Connecting the FRIAMAT 6

⚠ CAUTION

Overheated Cable

- Always unwind the cables (power supply cord, fusion cable and extension cords) and stretch them out completely before use.

⚠ CAUTION

Overheated fusion plug connector due to dirty contacts

- Always inspect the fusion plug connector and contact sockets of the fitting for dirt or debris, and clean them when necessary before connecting the fusion plug connector and fitting.
- Always protect the fusion plug connector against dirt, debris and damage.
- When a deposit has formed on the fusion plug connector which cannot be removed completely it must be exchanged for a new fusion plug connector.

INFO

Insufficient power supply due to dirty or damaged fusion plug connector

Defective fused joint

- Only use the original fusion plug connector).
- Always ensure that the fusion plug connector is clean and undamaged.

1. Set up the FRIAMAT 6 on level ground.
2. Prepare the fusion fitting and pipes for the fusion process in accordance to the manufacturers' instructions
3. Position the contact pins of the fitting in such a way that they are accessible for connecting the fusion plug.
4. Insert the power cord plug into the mains or generator power outlet in order to the establish power supply connection.
5. Use extension cords when necessary. Always observe the safety precautions when using extension cords (Refer to Section 2.11.3. Extension Cords).
6. With generator operation:
   - Always observe the safety precautions for generation operation (Refer to Section 2.11.2. Generator Operation).
   - Start the generator and allow it to warm up as per the manufacturer's recommendations.
   - If necessary, adjust the idling voltage and limit it to the voltage which is specified in the FRIAMAT 6 technical data (Refer to Section 17. Technical Data).
7. Turn the FRIAMAT 6 on at the main switch.
8. Connect the fusion plug so that it is completely engaged with the contact pins of the fitting.

11. POWERING ON AND OFF

NOTICE

Never unplug or plug in the FRIAMAT 6 while the main switch is ON.

Turning on:

1. Turn the FRIAMAT 6 on with the main switch.

NOTICE

Turning the FRIAMAT 6 off while the fan is still running may result in **damage to the processor.**

Turning off:

1. If the fan is running, wait until the FRIAMAT 6 has cooled and the fan stops.

2. Turn the FRIAMAT 6 off with the main switch.

12. FUSION PROCEDURE

12.1. Unlock the FRIAMAT 6

12.1.1. Enable the FRIAMAT 6

1. Scan the operator pass.
   - The valid operator pass will be shown in the display.
2. Confirm the details and information in the display with the confirm function key.

12.2. Scan a Barcode

12.2.1. Using the Scanner

INFO

Dirt and scratching on the scanner lens

The barcode cannot be read if the lens is dirty or scratched.

- Always protect the scanner lens against dirt and scratches.

1. Aim the scanner's lens at the fitting's barcode.
2. Push the button.
3. A red light band will appear to capture the barcode.
4. Align the scanner so that the light band crosses the center of the barcode.
5. A single audible tone will indicate that the barcode has been scanned successfully.
6. If there is no audible tone, repeat the procedure with a different position of the scanner (distance to the barcode, position of the light band).
7. If the scanner fails: Enter the barcode in manual (emergency) barcode entry mode (Refer to Section 12.2.2. Enter Barcode Digits Manually).

INFO

Using a barcode from another type of fitting

If the barcode is missing or damaged: Scan the barcode of an identical fitting model (same manufacturer, same batch).

In case of doubt: Contact the fitting manufacturer

12.2.2. Enter Barcode Digits Manually

1. Press the "emergency entry" (manual barcode entry) function button.
   - No digits will be displayed with initial usage.
   - The last barcode which was entered manually will be displayed.
   - It is the responsibility of the operator to ensure the fusion barcode is entered correctly
2. Enter the barcodes digits (Refer to Section 6.3.1. Entering Data Via the Virtual Keyboard or Numeric Keypad).
3. Save the entry with the confirmation function key, or
4. Make additional entries or settings.
   - If the sequence of digits is correct, the same display will appear as when the barcode is scanned with the scanner.

12.3. Enter Additional Data

Additional Information Data, Traceability Data, and ID Data must be entered if queries are turned on (Refer to Section 8.5. Data Documentation Settings).

12.3.1. Enter Information Data

Prerequisite:

- Fusion barcode is scanned.
- The “pipe processed?” query will be shown in the display.

1. Enter the information data (e.g. information text, comment, subcontractor) with the virtual keyboard.
2. Scan the barcode of the scraper device or enter it manually via the function key (entry/emergency entry key) (Refer to Section 12.2.2. Enter Barcode Digits Manually).

12.3.2. Enter Traceability Data

	• Scan the fusion barcode for the fitting
	• Scan traceability barcode from Component 1 • Enter Pipe Number • Enter Pipe Length
	• Scan traceability barcode from Component 2 • Enter Pipe Number • Enter Pipe Length

12.3.3. Enter ID Data

INFO

Entering sorting and picking numbers, seam numbers and GPS data is only possible under the following prerequisites:

- Documentation function is on.
- Functions for sorting and picking number, seam number, and GPS data are on (Refer to Section 8.5.4. ID Data).

If required, ID data can be entered in the ID data menu before each fusion:

1. Press ID data function key.
2. Enter ID data (sorting and picking number, seam number or GPS data), for the upcoming fusion.

12.4. Execute the Fusion Procedure

12.4.1. Start Fusion

WARNING

Escape of plastic melt during fusion

Burns on the skin

- For your general safety, always keep at least 3 feet (1 m) away from the fusion joint during the fusion process.

CAUTION

Fusing failure due to insufficient power supply

Defective fused joint

- Never connect any additional electrical loads to the power source during fusing.

INFO

Interrupted fusion process

If the fusion process is interrupted by a power failure it may be repeated no more than one time.

- Let the fusion point cool down.
- If necessary, remedy the source of the power interruption.
- Always follow the fitting manufacturer's instructions.

INFO

The FRIAMAT preCHECK function is always turned OFF during multiple phase fusion.

- Only use the FRIAMAT 6 in a cooled down state to prevent unwanted fusion interruptions.

1. Scan an operator pass (Refer to Section 8.3. FRIAMAT 6 Disabling and Enabling (Operator Pass)).
1. Enter the ID data when required (Refer to Section 12.3.3. Enter ID Data).
2. Scan the fusion barcode for the fitting.
3. When traceability is activated: Enter traceability data (Refer to Section 12.3.2. Enter Traceability Data).
4. Confirm the "pipe processed?" display with the START key or with the CONTINUE key. The fitting data will be displayed.
5. Inspect and confirm the fitting data. When information data query is switched on: Enter information data (Refer to Section 12.3.1. Enter Information Data).
6. Always observe the working temperature range when fusing fittings from other manufacturers.

7. Press the START key to start the fusion procedure.
8. The following indications appear in the display during the fusion procedure:

Display	Procedure
Testing and Inspecting	• The ambient temperature will be measured and the resistance of the connected fitting will be tested. • Testing the connected fitting and the FRIAMAT pre-CHECK function will be executed. • If the test result is positive, then fusion starts automatically.
Fusion progress (details in seconds)	• Fusion will be executed.
"Fusion successful" with "Fusion target value" and "Fusion time actual" display	• Fusion procedure is ended.

12.4.2. Conclude the Fusion Procedure

Prerequisite:

- Fusion procedure is ended.
- The display shows "Fusion successful" with "Fusion time target" and "Fusion time actual".

1. Note the fusion parameters on the pipe/fitting in order to prevent double fusions.
2. Confirm the display indication with the OK key (alternatively START key, STOP key). The fusion procedure is concluded. The FRIAMAT 6 is ready for the next fusion.

12.5. View the Fusion Number

1. Press ID data function key.
    - The display shows the sequential number for the next fusion which is to be performed.

This number is assigned to the respective active sorting and picking number. The sequential number starts with 1 for the first fusion. It is automatically incremented by the FRIAMAT 6. The number cannot be amended.

If a sorting and picking number has been used, then all fusions will be assigned to the same sequential number, which also counts up.

12.6. Lock the FRIAMAT 6

12.6.1. Disable the FRIAMAT 6 Manually

1. Scan the current operator pass.
    - The "DISABLE DEVICE?" query will be shown.
2. The following actions are possible:
    - Confirm the query: Press confirmation function key.
    - Abort procedure: Press abort function key.

13. NOTICE ERROR MESSAGES

Error messages, fault messages or warnings will be shown in the FRIAMAT 6 display. If an error message, fault message or warning is displayed which is not described below and cannot be explained and/or remedied on the basis of the plain text description in the display, contact IPEX USA LLC or an Authorized Service Center (Refer to Section 19. Authorized Service Centers).

- In order to display the plain text description: Press the upper function key.

13.1. Information and Warning Information

Message	Note, Information/Assistance
Attention! Double Fusion!	An additional fusion has been started on the same fitting. When a fitting should be double fused: • Disconnect the contact plugs of the FRIAMAT 6 from the fitting after the first fusion is completed. • Allow the fitting to cool down (refer to the fitting manufacturer's machining and processing instructions).
Let the FRIAMAT 6 cool down	Protection function which prevents FRIAMAT 6 from overheating. • Let the FRIAMAT 6 cool down. • Leave the FRIAMAT 6 switched on so that the fan can assist with cooling.
Fusion Stop	Fusion was aborted by pushing the STOP button.
End of Fusion	Fusion has been completed.
Checks	Inspect the fitting data and FRIAMAT preCheck function.
Voltage ... V; Frequency ... Hz	The power supply is incorrect: • Verify correct generator output. • Acknowledge with the STOP button. • If it is necessary to adjust the power supply, shut down and unplug the FRIAMAT 6.
Maintenance date exceeded	Have the scheduled maintenance of the FRIAMAT 6 completed by an Authorized Service Center.
FRIAMAT preCheck deactivated	The FRIAMAT preCheck function has been switched off when utilizing the 2D barcode according to ISO 12176-5:2021 with multiple-phase fusions.

13.3. Error Messages

No.	Error	Possible Causes	Assistance
01	Wrong barcode	Incorrect or false barcode	• Use a new barcode of the same batch. • Correct manually entered barcode.
02	Temperature out of range	Surrounding temperature exceeds the permissible range	• Implement measures in order to ensure the surrounding temperature is within the permissible range. Create a tent over, or shield the fusion area.
03	Resistance outside of tolerance	Electrical resistance of the fitting exceeds the tolerance	• Inspect contacting for tight fit, soiling or dirt. • Disconnect FRIAMAT 6, clean the contacts. • Exchange the fitting.

No.	Error	Possible Causes	Assistance
04	Fitting's wire turn short circuited	Short circuit in the wire winding of the fitting	• Exchange the fitting and return it to the fitting manufacturer for inspection.
05	Fitting's wire turn interrupted	Current flow interrupted	• Inspect the fusion plug connection on the fitting. • Exchange the fitting and return it for examination.
06	Impermissible deviation for fusion voltage	Impermissible deviation for fusion voltage	• Notify the authorized service center.
08	Operating voltage out of range	Operating voltage during fusion is outside the permissible range. Extension cord too long or cross-section too small	• Inspect voltage and connection conditions of the generator.
09	Frequency out of range	Frequency during fusion is outside the permissible range	• Inspect generator voltage frequency.
10	Fusion stop	Fusion aborted by pressing the STOP button	• -
12	Device overheated	Protection function which prevents FRIAMAT 6 overheating	• Let the FRIAMAT 6 cool down. The fans assist in lowering the FRIAMAT 6 temperature when the FRIAMAT 6 is switched on.
13	Operating voltage failure	Supply voltage interrupted (e.g. power failure during fusion) or too low	• Inspect connection conditions.
14	Power too low	Power consumption of the fitting is very small or too low: The FRIAMAT 6 cannot provide such small power	• Contact IPEX USA LLC.
15	Power exceeded	Power consumption of the fitting exceeds the capacity of the FRIAMAT 6	• Contact IPEX USA LLC.
17-19	System error	-	• Contact IPEX USA LLC.
23	Generator error	Generator not suitable for the fusion operation	• Contact IPEX USA LLC.
30	Fan is blocked or defective	Make sure ventilation inlet and outlet are clear	• Contact IPEX USA LLC.
32	Temperature sensor fault	One of the temperature sensors in the FRIAMAT 6 is defective	• Contact IPEX USA LLC.
34	Temperature limit reached	One of the temperature sensors senses high temperature in the FRIAMAT 6	• Let the FRIAMAT 6 cool down. The fans assist in lowering the FRIAMAT 6 temperature when the FRIAMAT 6 is switched on.
50	USB interface fault	Data transfer not possible	• Contact IPEX USA LLC.
70	Communica-tion fault	Disrupted data transfer within the FRIAMAT 6	• Contact IPEX USA LLC.

14. TRANSPORT AND STORAGE

The FRIAMAT 6 is delivered in a sturdy transport case.

- The FRIAMAT 6 is delivered in a sturdy transport case. Always store and transport the FRIAMAT 6 in this transport crate in order to protect it against moisture and physical damage.
- Permissible temperature range: -4°F to +122°F (-20°C to +50°C)

15. CARE AND MAINTENANCE

15.1. Maintenance Requirements

- The FRIAMAT 6 must be serviced by IPEX or an Authorized Service Center every 12 months to maintain compliance with ISO 12176-2:2008.
- The service interval starts after the first fusion, and may be different than the sticker.
- The warranty will be voided if the FRIAMAT 6 is not serviced every 12 months.

15.2. Maintenance, Testing and Inspection Intervals

What?	When?	Who?
Cleaning the barcode scanner	Daily	Operator
Controlling for damage	Daily	Operator
Inspect and test function	Before every use	Operator
Inspect contacts, if necessary clean or exchange them	Before every use	Operator
FRIAMAT 6 maintenance	Annually	IPEX USA LLC 10100 Rodney St, Pineville, NC 28134 or Authorized Service Centers

Table 8. Intervals

15.4. Software Update

The user can download software updates and install them on the FRIAMAT 6.

Aliaxis Deutschland GmbH will email software updates when available to the email address associated with the user account created during the FRIAMAT 6 registration process.

15.4.1. Install Software Update

INFO

If the update cannot be installed on the FRIAMAT 6, contact the Authorized Service Center in your area or IPEX USA LLC (Refer to Section 19. Authorized Service Centers).

Prerequisites

- A commercially available computer with USB port and Internet access.
- A USB stick formatted in FAT 32 with up to 256 GB.

1. Visit the WorkFlow Web via a browser: https://portal.aliaxis.de/portal/en
2. Navigate to the "FRIAMAT Software Update" module in the WorkFlow Web.

3. Download the update.

   Every update comprises a data package with several files in which the following information is provided: Instructions for performing the update, information about system prerequisites, hardware prerequisites for downloading and transferring.

   - Always follow the instructions for performing the update.
   - Always check the system and hardware prerequisites.

4. Copy the data files from the computer to a USB stick.
5. Call up the menu item on the FRIAMAT 6:
   - Main Menu > Basic Setting > Update
6. Connect the USB stick to the FRIAMAT 6.
7. Follow the instructions for the update.
8. Follow the instructions on the display.
9. After a successful update, please turn the FRIAMAT 6 OFF and ON again.

15.5. Resetting the FRIAMAT 6 to Factory Settings

1. Call up the menu item:
   - Main Menu > Basic Settings > Factory Settings
2. Reset the FRIAMAT 6 to the factory settings.

15.6. Warranty

1. IPEX USA LLC warrants the Friamat 6 Processor (the "Processor") against defects resulting from faulty workmanship or materials for a period of six months from the date of shipping to the original purchaser (end-user) (the "Product Warranty"). For the warranty granted by the manufacturer of the Processor, refer to https://www.aliaxis.de/en/metanavigation/agb/delivery-payment-terms.

2. IPEX USA LLC also warrants the calibration and repair services it provides on the Processor (the "Services") against defects resulting from faulty workmanship for a period of 60 days upon which the calibration or repair services are complete (the "Service Warranty").

3. The Product and the Service Warranties are subject to the limitations, exceptions, disclaimers and conditions stipulated hereunder.

4. If IPEX USA LLC receives a notice of a defect of a Processor during the Product Warranty Period or the Service Warranty Period, IPEX USA LLC will at its entire discretion either replace, with either a new or like-new Processor, or repair, free of charge, including ground shipping charges, any Processors which are found to be defective in workmanship or material, provided that the following conditions are met:

   a. IPEX USA LLC is notified in writing of such defect immediately upon discovery of the defect and the defective Processor is promptly returned to IPEX USA LLC (at the location designated by IPEX USA LLC for those purposes), freight prepaid. Claimant must provide documentary evidence of failure, as well as the components that are alleged to have failed and agree to inspection by IPEX USA LLC of the circumstances in which the alleged defective Processor(s) was/(were) used.

   b. The Processor has been used and has been maintained, calibrated and serviced by an authorized service center, all in full compliance with the Friamat 6 Technical Manual and

other technical information or literature provided by IPEX USA LLC on its website as well as with the industry standards, and in conformance with all applicable laws and regulations.

c. The Processor has not been altered or modified after leaving IPEX USA LLC's premises, shows no evidence of disassembly or tampering, is not and has not been subjected to abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair and the defect is not due, without limitation, to faulty installation, maintenance, calibration or use, improper site preparation or maintenance, ordinary wear and tear, corrosion, acts of nature such as earthquakes, fire, flood or lightning or any other event of force majeure.

5. IPEX USA LLC disclaims any liability or responsibility:

   a. for labor, materials and/or other expenses required in the exercise of either the Product Warranty or the Service warranty.

   b. for the repair of any damage resulting from the use of a defective Processor.

   c. for loss or damage resulting from failure to abide by manufacturer's warnings, safety instructions or other precautionary guidelines.

6. ANY CLAIM OF LIABILITY ASSERTED AGAINST IPEX USA LLC WHETHER IN CONTRACT OR IN TORT (INCLUDING NEGLIGENCE) OR OTHERWISE, WITH RESPECT TO OR ARISING OUT OF THE SALE, DELIVERY, INSTALLATION, REPAIR OR USE OF ANY PROCESSORS OR SERVICES SOLD BY IPEX USA LLC SHALL NOT EXCEED THE PURCHASE PRICE OF THE PROCESSORS OR SERVICES FOUND TO BE DEFECTIVE. It is the responsibility of the owner to obtain and pay for emergency repairs.

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16. TECHNICAL DATA

Technical Data		FRIAMAT 6 110V Electrofusion Processor
Input voltage range		Nominal 95-138VAC
Frequency range		44-66 Hz
Current consumption		AC 30 A maximum
Power		3.5 kW
Generator Nominal power for fitting	d 1/2 CTS – d 2 IPS	~ AC 2.4 kW
	d 3 IPS – d 20 IPS	~ AC 4.0 kW
	d 22 IPS - 30 IPS	~ AC 5.0 kW
Device Fuse		30-A Time Delay
Housing		Protection category IP54 / DIN EN 60529 Protection Class I / DIN EN 60335-1
Power Supply Cord		5 m with plug
Fusion Cable		4 m with fitting connection plug Ø 4 mm
Code type		• Barcode 128 or 2D Data Matrix (Aztec Format) according to ASTM F-2897-21 • Barcode 2/5 overlapped (interleaved) according to ANSI HM 10.8 M-1983 and ISO CD 13950 • Barcode 128 a/b/c according to ISO 12176-4:2003 2D code (QR; Aztec; Data Matrix) according to ISO 12176-5:2021
Working temperature range		-4°F to +122°F * (-20°C to +50°C *)
Fusion current monitoring		• Short circuit maximum 110A • Short circuit 1.70 x I nominal • Interruption 0.25 x I nominal
Fusion voltage		Maximum 48VDC
Interface		USB Bluetooth Low Energy V4.2 (CE, FCC, IC Certified)
Protocol format		CSV, JSON, PDF
Protocol memory		20,000 protocols
Display languages		In Alphabetical order: English, French, Portuguese, Spanish
Dimensions (W x D x H)		260 x 500 x 340 mm
Weight		Approximately 19 kg
Scope of delivery		Operating manual Transport crate
Approval/Quality		ISO 9001

Always observe the information relating to the working temperature range when fusing fittings from other manufacturers.

17. Authorized Service Centers

IPEX USA LLC
10100 Rodney St, Pineville, NC 28134
1-800-463-9572 | www.ipexna.com

SALES AND CUSTOMER SERVICE

Customers call IPEX USA LLC..
Toll free: 1 (800) 463-9572
www.ipexna.com

About IPEX by Aliaxis

As leading suppliers of thermoplastic piping systems, IPEX by Aliaxis provides our customers with some of the world's largest and most comprehensive product lines. All IPEX by Aliaxis products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have earned a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX by Aliaxis products are:

- Electrical systems
- Telecommunications and utility piping systems
- PVC, CPVC, PP, PVDF, PE, ABS, and PEX pipe and fittings
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems

The FRIAMAT 6 110V Electrofusion Processor is manufactured by Aliaxis Deutschland GmbH, Mannheim, Germany, and distributed in the U.S.A. by IPEX USA LLC.

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