

ROTHENBERGER

ROFUSE 400/1200 TURBO

ROFUSE 400/1200 TURBO



DE Bedienungsanleitung
EN Instructions for use
HI उपयोग के लिए अनुदेश
AR تعليمات الاستخدام



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Markings in this document:



Danger!

This sign warns against the danger of personal injuries.



Caution!

This sign warns against the danger of property damage and damage to the environment.



Call for action

1.1 Intended use

The product ROFUSE TURBO is a heater coil electro fusion unit which is suitable for use in mobile construction site operations. Using ROFUSE 400 TURBO, electro fusion couplers (fittings) (8 V – 48 V) made out of plastic of up to 400 mm in diameter of and with ROFUSE 1200 TURBO of up to 1200 mm in diameter can be welded (one should always observe the data for the fittings to be welded and the ROFUSE TURBO welding devices). Using barcode scanners welding data can be read in which are encrypted using a 24-digit barcode according to ISO 13950:2007-03.

1.2 General safety instructions



ATTENTION! When using electric tools, the following fundamental safety measures must be taken to prevent electric shock, injury or fire.

Read all of these instructions before you use the electric tool, and store the safety instructions properly.

Service and maintenance:

- 1 **Regular cleaning, maintenance and lubrication.** Always pull the electrical plug before any adjustment, maintenance or repair.
- 2 **Have your device repaired only by qualified experts and only with original replacement parts.** This ensures the continued safety of the device.

Working safely:

- 1 **Keep your work area orderly.** A messy work area can cause accidents.
- 2 **Consider environmental influences.** Do not expose electric tools to rain. Do not use electric tools in damp or wet environments. Keep the work area well lit. Do not use electric tools where there is a risk of fire or explosion.
- 3 **Protect yourself from electric shock.** Avoid physical contact with earthed parts (such as pipes, radiators, electric stoves or cooling devices).
- 4 **Keep other people away.** Do not let other people — especially children — touch the electric tool or its cable. Keep them away from the work area.
- 5 **Store electric tools safely when they are not in use.** Unused electric tools should be kept in a dry, high or closed area, out of reach of children.
- 6 **Do not overload your electric tool.** Work is better and safer within the performance range indicated.
- 7 **Use the right electric tool.** Don't use low-performance machines for heavy-duty jobs. Do not use the electric tool for purposes for which it was not intended. For example, do not use a portable circular saw for cutting tree branches or logs.
- 8 **Wear proper clothing.** Do not wear loose clothing or jewellery, as they can get caught in moving parts. When working outdoors, wear slip-resistant shoes. Wear a hairnet over long hair.
- 9 **Use protective gear.** Wear safety glasses. Wear a breathing mask during work that creates dust.
- 10 **Connect the dust extraction equipment.** If there are connections to dust extraction and collection equipment, make sure that they are connected and properly used.
- 11 **Do not use the cable for purposes for which it was not intended.** Never use the cable to pull the plug from the socket. Protect the cable from heat, oil and sharp edges.
- 12 **Secure the work piece.** Use clamps or a vice to hold the work piece firmly. They will hold it more securely than your hand can.
- 13 **Avoid abnormal postures.** Make sure to stand securely and always keep your balance.
- 14 **Maintain your tools with care.** For better and safer work, keep cutting tools sharp and clean. Follow the instructions for lubrication and changing tools. Regularly inspect the electric tool's connection cable, and if it is damaged, have it replaced by an authorized expert. Regularly check extension cords and replace them if they are damaged. Keep the handles dry, clean and free of oil and grease.

- 15 **Pull the plug from the socket.** When not using the electric tool, before maintenance or when changing tools, such as saw blades, drills and cutting bits.
- 16 **Do not leave any tool keys inserted.** Before switching on, check to see that keys and adjustment tools have been removed.
- 17 **Avoid unintentional activation.** When plugging the tool in, make sure that the switch is turned off.
- 18 **Use outdoor extension cords.** When outdoors, use only extension cords that are approved and appropriately marked.
- 19 **Be alert.** Pay attention to what you do. Approach your work sensibly. Do not use the electric tool when you are distracted.
- 20 **Check the electric tool for damage.** Before using the electric tool, you must inspect safety equipment or slightly damaged parts carefully to ensure that they work properly and as intended. Check to see that the moving parts operate freely and don't stick, and to make sure no parts are damaged. All parts must be mounted properly and meet all the conditions for ensuring trouble-free operation of the electric tool.
 Damaged safety equipment and parts must be properly repaired or replaced by a professional facility, unless otherwise indicated in the user manual. Damaged switches must be replaced by a customer service facility.
 Never use an electric tool whose switch cannot be turned on and off.
- 21 **Caution.** Using other insertion tools and accessories may cause injury.
- 22 **Have your tool repaired by an electrical expert.** This electric tool meets applicable safety requirements. Repairs must be made only by an electrical expert using original replacement parts. Otherwise accidents may occur.

1.3 Special safety instructions

- There is danger of suffering an electric shock when using faulty insulation.
- There is danger of suffering burns due to the high temperatures of the housing during intensive use or longer welding operations.

This device is not intended for use by children and persons with physical, sensory or mental limitations or a lack of experience or knowledge. This device can be used by children aged 8 and above and by persons who have physical, sensory or mental limitations or a lack of experience or knowledge if a person responsible for their safety supervises them or has instructed them in the safe operation of the device and they understand the associated dangers. Otherwise, there is a danger of operating errors and injuries.

Supervise children during use, cleaning and maintenance. This will ensure that children do not play with the device.

2 Technical Data

Art.no. ROFUSE 400 / 1200 Turbo	1000000999 / 1000001000
Mains voltage	230 V
Frequency	50 Hz; 60 Hz
Power consumption	3.000 VA, 70 % ED
Output current (nominal current)	80 A
Welding voltage	8 – 48 V
Ambient temperature	- 10 °C until + 60 °C*

Area of application ROFUSE 400 Turbo	Fittings until 400 mm
ROFUSE 1200 Turbo	Fittings until 1200 mm
Protection type	IP 54
Transmission interface	USB v 2.0
Storage capacity	2.000 Welding logs
Overflow memory	47 Welding logs
Dimensions (L x W x H)	about 500 x 250 x 320 mm
Weight including welder cable (basic unit, without accessories)	about 21,5 kg
Contacts	4 mm and 4.7 mm according to IEC 60529

*Cooling times vary with the ambient temperature. Direct sunlight should be avoided

2.1 Measurement tolerances

Temperature	± 5 %
Voltage	± 2 %
Current	± 2 %
Resistance	± 5 %

3 Active Cooling System (ACS) and Heat Control (HC)

The device is fitted with a ventilator. This starts up as soon as the device is switched on at the main switch. The fan assists in better removing the heat which arises in the device during welding. We recommend therefore that the device is also switched off between two welding sessions in order to optimise cooling of the device.

The device is fitted with a heat control function (HC). Before every welding session the device decides whether the next welding session can be reliably performed to the end. Factors such as the current device temperature, the ambient temperature and the welding data of the fittings play a role. If the current device temperature is too high, the expected waiting time is displayed on the display. The ventilator reduces this waiting time significantly.

4 Storage / transport

The device power connecting cable and the welding cable should be protected from sharp edges.

The welding device should not be subjected to strong mechanical loads.

The device should be stored at temperatures ranging from - 30 to + 70 °C.

5 Work preparation

When operating the automatic welding machine ensure that it is installed on a sure footing. The welding device is splash proof (IP54).



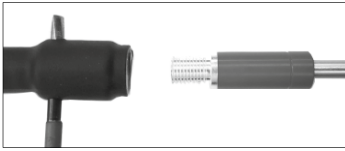
The device must not be submerged in water.

In order to secure the fitting against slipping during the welding process, the respective clamping fixtures should be used. The assembly instructions for the respective fitting manufacturer as well as local or national regulations and installation instructions should always be observed.

The contact surfaces of the welding plug and the fittings must be clean. Dirty contacts can lead to overheating damage to the plug. Check which plug type(s) are needed for the welding to be performed. Before changing the plugs, always unplug the mains power plug beforehand!



In order to change the plug-in contacts, insert a pin or a similar item (3 mm dia.) at the side into the bore on the screw connector and hold fast. Unscrew using a screwdriver with a Torx 15 adapter and remove.



Put in the new adapter by hand and screw on down to the stop and tighten down firmly using a screwdriver with a Torx 15 (15 Nm) and then remove the holding pin again.



All metallic surfaces must be covered.

6 Electrical connection

For construction site distribution boards observe the regulations about the FI protective switch and only operate the welding device over an FI switch (Residual Current Device, RCD).

Ensure that the mains power network or power generator is fused using fuses of a maximum of 20 A (time-lag).

Only appropriately use approved and registered extensions cables with the following conductor cross-sections.

up to 20 m: 1.5 mm² (recommended 2.5 mm²); model H07RN-F

more than 20 m: 2.5 mm² (recommended 4.0 mm²); model H07RN-F

The extension cable may only be used when unrolled completely and stretched to avoid overheating.

The required power generator nominal output is dependent on the highest power consumption of the fittings used. Furthermore, the ambient conditions as well as the performance data of the power generator itself should be taken into account when constructing the connecting conditions on-site.

The nominal power output of a single-phase power generator is 220 – 240 V, 50/60 Hz:

d 20 - d 160 3,2 kW

d 160 - d 400 4 kW mechanically regulated

d > 400 5 kW electronically regulated

The power generator must be switched on first before the welding equipment can be attached. The open circuit voltage should be regulated at about 240 volts.



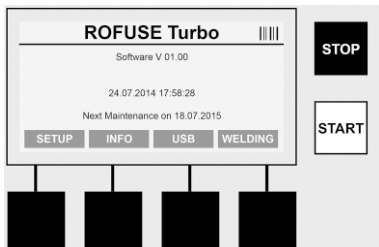
Note: No other consumer should be driven by the same power generator while welding!

After finishing the welding work, first separate the device connector plug from the power generator, then switch this off.

7 Commissioning and operation of the device

7.1 Switching on the device / Start screen

The device is switched on at the main switch after connection to the power network or power generator. The Start screen is displayed.



- Display of allocated memory locations (see Section 8)
- Date and time
- Display of the next scheduled maintenance date
- Assignment of multi-functional keys

Multi-functional keys:

- SETUP You use this button to navigate to the Setup menu. It is here that settings such as the time, languages, methods for data entry and scheduled maintenance dates are set.
- INFO This is where extensive information about the device can be retrieved such as the serial number, owner, etc.
- USB The stored welding sequences can be transferred from the internal memory of the device to a USB memory medium using the USB menu.
- WELDING One uses this multi-functional key to navigate to “Data entry” in order to start welding.

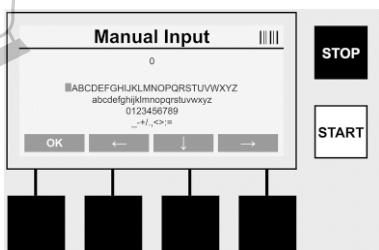
7.2 Data entry (general description)

The majority of data can be entered either manually or by means of a barcode scanner.

Barcode scanner

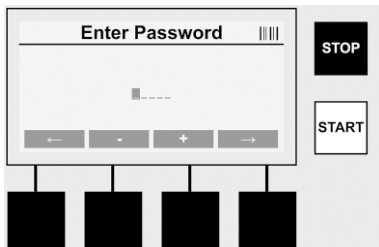
A barcode is read in that a barcode scanner is held at a distance of about 5 - 10 cm in front of the barcode. If the barcode scanner is in Standby mode, shortly press the button on the handgrip of the scanner; the scanner switches on. The red line displays the reading area. Press the button on the handgrip again. The barcode is read in. If the data is recognised and stored correctly a signal tone sounds and the read in data are displayed as clear text (numbers / letters) on the welding equipment display. If the scanned in barcode matches the expected barcode, the welding equipment also confirms the correctness of the barcode with a signal (for example the welding equipment does not accept it if, at the point in the welding process at which the fitting barcode should be scanned in, the barcode for the fitting traceability is scanned in instead).

Attention! A class 2 laser – never look directly into the laser beam!



Manual Input of data (letters and numbers)

Using manual entry allows both data, such as the name of the welder or the construction site, or also the number sequences which are encoded in the barcode, to be entered, for a case where this is illegible or the barcode reading device is defective. Letters and numbers can be entered over the displayed alpha-numeric keyboard. The letters or numbers are located (selected) by the arrow keys. Press OK to confirm the selection. Press the **>arrow downwards<** and **>OK<** buttons, one after the other, after completing the data entry. Letters and characters can be deleted by actuating the **>STOP<** button.



Manual Input of numbers

If only numbers are needed for the data entry (e.g. manual entry of the scan fitting code), then only the numbers from 0 – 9 are offered for selection. The numbers can be selected using the **>+<** and **>-<** buttons. The **>arrow to the left<** and **>arrow to the right<** buttons are used to locate the individual numbers. After entry of the last number, also confirm this by pressing the **>arrow to the right<** button.

7.3 Performance of a welding sequence

Press the multi-function key **>WELDING<** on the Start screen.



The required data for welding can be entered under the menu point **>WELDING<**. A barcode can be read in for this using the barcode scanner or, otherwise, data can also be entered manually using the multi-function keys.

Input Welder Name

If the option "Welder code" is deactivated the name of the welder can be entered at this point. Entry can be either manually or through use of the barcode. The "Welder name" is a freely entered name consisting of up to 30 digits. Entry can be sprung over using the **>OK<** button. If the option "Welder code" is activated, the "Welder name" is not additionally queried.

Welder code

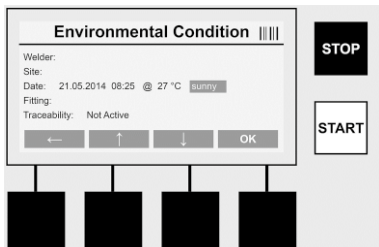
If the option "Welder code" is activated in the parameters (see Section 7.5 "SETUP"), then a valid welder code must be entered at this point (only an ISO-standard compliant welder code will be accepted by the device).

Scan Site-Code

This entry can be made either through use of the barcode scanner or manually or can also be skipped over by using the **>OK<** button and thus remains empty.

Date

The current date and time and ambient temperature are displayed here.



Environmental Condition

If the option “Environmental condition” is activated (see Section 7.5 „SETUP“), then the environmental conditions at the point in time of the welding (sunny, dry, rain, wind, time, heating) should be entered at this point.

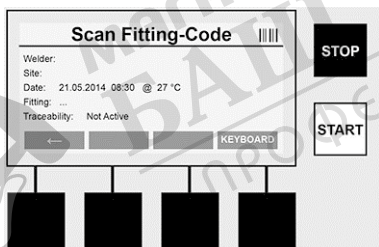
Fitting Code

The scan fitting code must be entered here. This contains details about the welding voltage, welding time and (in part) cooling time and is located on the electro fusion coupler in the form of a barcode. The scan fitting code can also be entered manually if the scan fitting code is damaged.

Traceability

If the option “Traceability” for fittings or pipes is activated in the parameters (see Section 7.5 “SETUP“), then an entry must be made at this point. This entry can be made either through use of the barcode scanner or manually. If the “Traceability of fittings” is set as an optional entry, an entry can be made; the query “Traceability of fittings” can also be sprung over using the >OK< button and therefore remains empty. If the option “Traceability of fittings” is deactivated, it will not be displayed on the screen and not queried.

Now connect the welding contacts with the fitting. Use a suitable adapter if necessary (see Section 5). The contact surfaces of the welding plug or adapter and the fitting must be clean.



Scan in the scan fitting code with the aid of the barcode scanner. If the barcode scanner is defective or if the scan fitting code cannot be read in, the scan fitting code can also be entered manually. To do this press the >KEYBOARD< button (see also Section “Data entry”).

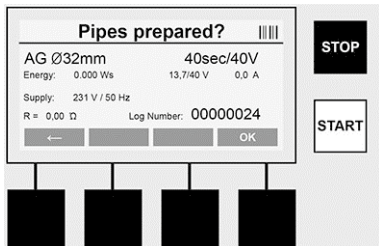
If there is no cooling time integrated in the bar code of the fitting, the cooling time which is written on the fitting can be entered manually. The user can skip this entry by pressing the >OK< button.

If there is a cooling time integrated in the bar code of the fitting, this cooling time is shown in the display after the welding process is finished. The cooling time count down is running and the cooling time is recorded.

If there is no cooling time integrated in the bar code of the fitting and the user has manually entered the cooling time, this time is shown in the display after the welding process is finished. The cooling time count down is running but the cooling time is not recorded.

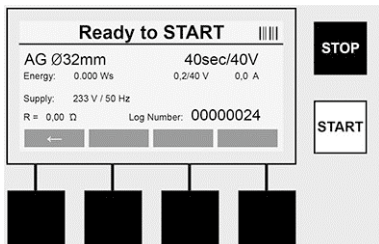
Cooling Time

If there is no barcode integrated in the fitting and the user has not entered manually, the cooling time is not shown in the display and it will not be recorded.



After successful data entry the screen changes to the query concerning whether the pipes are machined according to manufacturer's instructions. This must be confirmed with **>OK<**.

Before the actual welding starts the device again displays all relevant welding parameters.



Diameter Pipe diameter according to the scan fitting code

Energy Energy used

Weld Welding time according to the scan fitting code, actual / plan welding voltage, current welding current

Supply Mains voltage and mains frequency

R Current resistance of the heating coil

Log Log number, a serial number increasing over the whole service life of the device

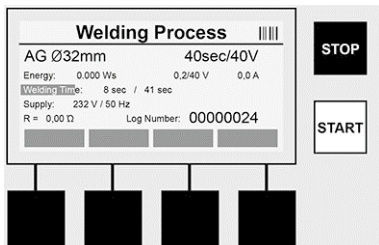
The device performs two safety checks at this point:

Correct Fitting Connection (CFC)

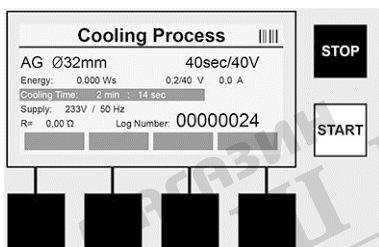
The device checks whether a fitting is attached and compares these data with the previously scanned in data. If the deviation between both values is less than the tolerance referred to in the code, the welding process begins. If the deviation lies outside the permissible tolerance then the device will report an error and provides information about where the error could lie (see "Error patterns" Chapter 8).

Heat Control Function (HC).

The device calculates (based on welding parameters, the current device temperature and the ambient temperature) whether this welding sequence can be performed completely. It is above all at high outside temperatures or with large fittings that there could otherwise be overheating of the device and therefore emergency switching off during the ongoing welding process. The green **>START<** button lights up if the welding sequence can be performed completely. The welding process can be started by pressing this button. If the current device temperature is too high, the red **>STOP<** button lights up. A notice will appear in the display concerning how long the device must cool down for before one can start welding again (the time displayed here is an approximate time). If the green **>START<** button lights up then pressing this button will start the welding process.



All relevant data are displayed on the screen during the welding process. The welding process is monitored during the whole welding time according to the welding parameters prescribed by the scan fitting code. The welding process can be broken off at any time by pressing the **>STOP<** button. The welding device automatically regulates the welding time according to the ambient temperature. Therefore the welding times for identical fittings can vary. The welding time is also displayed for simplified presentation as a status column. The result is shown in the display after ending the welding cycle. The cooling time should be observed according the fitting manufacturer's instructions. If the barcode for the fitting contains information about the cooling time, this is displayed after ending the welding process. The cooling time is also displayed for simplified presentation as a status column. The cooling time can be ended at any time by pressing the **>STOP<** button. Breaking off of the cooling process will be noted in the log. Also separation of the fittings from the connections leads to breaking off of the cooling time.

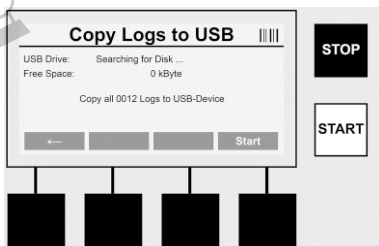


If the welding is faulty, the message "Error" appears in the display. An acoustic and a visual signal in the form of a red flashing LED is issued.

A new data entry can be started using the **>arrow to the left<**.

7.4 Transfer of the stored welding protocol

Press the multi-function key **>USB<** on the Start screen.



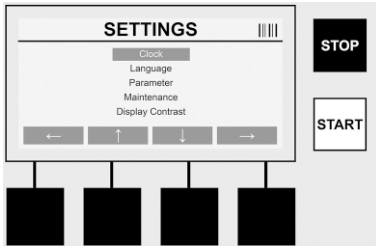
The logs can be transferred from the internal memory of the device to a USB memory medium using the "USB" menu point.

Insert a USB stick into the USB connector. Wait until the storage medium was successfully recognised. This is displayed with the respective representation. Upon actuation of the **>Start<** button all logs stored in the device are transferred the USB stick. The device creates a new directory with the name "ROFUSE" on the USB stick. In a sub-directory of "ROFUSE", a further directory is created with the serial number of the device as a name. The logs are stored in this directory.

The logs can be managed using the read out software RODATA 2.0 and also further processed (see Section 9).

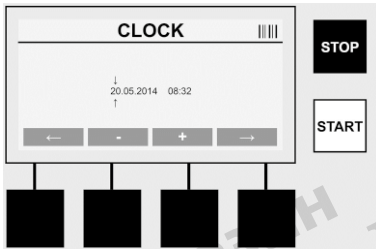
7.5 Configuration of the device ("SETUP")

Press the multi-function key **>SETUP<** on the Start screen.



The desired menu point can be selected using the two central up and down arrows and confirmed using the **>arrow to the right<**.

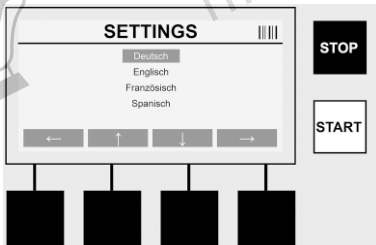
The **>arrow to the left<** allows one to leave this menu and navigate back to the Start screen.



Clock

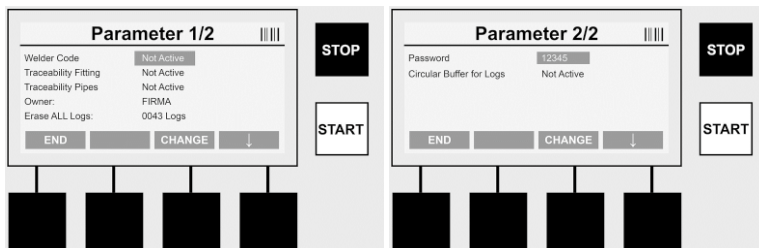
Adjusting the date and time The date and time are displayed in the format dd.mm.yyyy hh:mm. Select the number to be changed over the **>arrow to the left<** and **>arrow to the right<** buttons. Corrections can be made using the **>+<** and **>-<** buttons. The menu can be exited again using the **>arrow to the left<**.

The clock is supplied with power by an internal battery so that this can also run after being disconnected from the mains power plug.



Language

Adjusting the language. Select the desired language using the **>arrow upwards<** and **>arrow downwards<** buttons and confirm using the **>OK<** button.



Parameter

The password-protected area. Settings can be made on the device in this menu point which have effects on the device properties and functions (e.g. welder code, scan site-code, traceability, ...). Entries and functions can be enabled or disabled for the user and therefore sequences prescribed at the construction site. The PIN code is pre-allocated on the works side with "12345". Please alter the password as needed (see sub-menu point "Password"). The menu can be left at any point using the **>END<** button.

Welder code

Entry of the welder code can be activated or deactivated here (for a description see Chapter 7.3). The status can be altered by pressing the **>CHANGE<** button.

If the option "Welder code" is activated then a valid welder code according to ISO-12176-3 is needed to start a welding sequence.

Traceability Fitting

Entry of the traceability of the fitting can be activated or deactivated here or set as an optional entry (for a description see Chapter 7.3). The status can be altered by pressing the **>CHANGE<** button.

Traceability Pipes

Entry of the traceability of the pipes can be activated or deactivated here or set as an optional entry (for a description see Chapter 7.3). The status can be altered by pressing the **>CHANGE<** button.

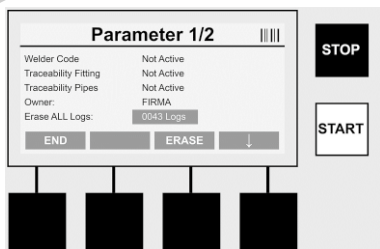
Owner

The owner of the device (e.g. the company name) can be altered here. The change takes place manually (see also the Chapter "Data entry").

Erase ALL Logs

This where all stored welding sequences can be deleted.

Attention! The whole memory is deleted. Partial deletion of the stored welding sequences is not possible.



The device saves up to 2,000 welding sequences automatically. If the 2,000 memory places are filled up the device displays an appropriate warning on the Start screen. A further 47 welding sequences are stored in the overflow memory.

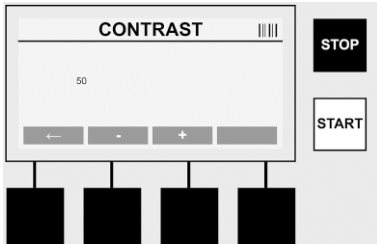
Attention! Loss of data can occur if a welding sequence is performed despite a full memory. We recommend backing up the logs in good time using a USB stick and clearing the device memory regularly.

Password

This is where the password for the protected area "Parameter" can be altered. Press the **>CHANGE<** button to change the password. The change takes place manually (see also the Chapter "Data entry").

Maintenance

Password-protected area (excluding ROTHENBERGER service personnel or authorised specialist partner).

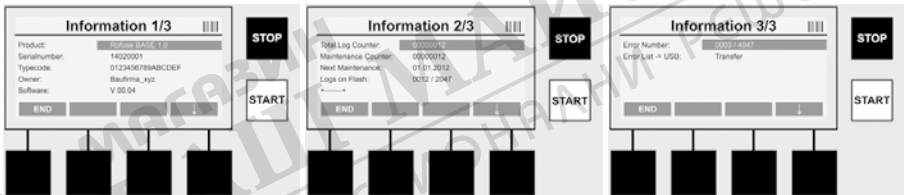


Contrast

The contrast of the display can be adapted here to the environmental conditions. The contrast can be altered using the arrow keys **>+<** and **>-<**. The sub-menu can be exited again using the **>arrow to the left<** button.

8 Information / Error Diagnosis

Press the multi-function key **>INFO<** on the Start screen.



The following information is displayed:

Product	Name of the product
Serialnumber	Serial number of the device
Typecode	Type code of the device according to ISO 12176-2 for example: P24US2VAKDX
Owner	Owner of the device (see Section 7.5)
Software	Software running
Total Log Counter	Number of all previously performed welding sequences performed during the service life of the device
Maintenance Counter	Number of welding sequences performed since performing the last maintenance work
Next Maintenance	Date of the next scheduled maintenance in the format dd.mm.yyyy
Logs on Flash	Number of logs which are currently to be found in the device's internal memory
Error entries	Number of error entries

Error list

Error messages can be transferred onto a USB stick. These data can then (for example by email) be sent to a ROTHENBERGER service engineer or an authorised partner. If the device is defective or if the function of the device is impaired a remote diagnosis may possibly be made on the basis of the error patterns.

8.1 Solution

Wrong password

A valid password has to be entered in order to navigate to the menu point Parameters or Maintenance. Please inform yourself from the persons responsible for the device about your authorisation level and the valid code.

Wrong Fitting

This error message appears if the fitting parameters taken from the fitting code do not match the actually measured values. Please check whether the scanned in code matches the fitting.

Corrupt Fitting Code

The scanned in fitting code could not be decoded. Please check the code for damage or dirt.

No Fitting Detected

A welding sequence was attempted without a plugged in fitting. Please check the contacts of the fitting and plug for damage or dirt.

Fitting Shortcircuit Detected

A short circuit was detected on the fitting. Please check the contacts of the fitting and plug for damage or dirt.

Fitting diameter > 400 mm

The ROFUSE 400 Turbo can only weld fittings of up to 400 mm in diameter.

Dataloss at Start - Memory Full!!!

If a welding sequence is started despite this message data loss will occur. The welding is NOT documented. Back up all data using a USB stick and erase ALL logs.

An impermissible ambient temperature

The ambient temperature is outside the permissible range. Place the device in the shadow or switch on the heater.

Undervoltage

Turn up the voltage during generator operation.

Overvoltage

Turn down the voltage during generator operation.

Frequency error

The frequency of the supply voltage is outside the permissible range.

A system error

Send in the device immediately for repair. Do not perform any more welding!

Interruption

Interruption of the welding voltage occurred during welding.

The welding voltage is faulty

The welding voltage moved outside the permissible range during welding.

9 The read out and management programme RODATA 2.0

The read out software as well as the installation and operating manual for the software can be found on the USB stick supplied. The software can also be downloaded if necessary from the homepage www.rothenberger.com.

10 Maintenance

According to DVS 2208 Part 1, repeat checking (maintenance) should be undertaken at least once a year.

11 Accessories

Accessory Name	ROTHENBERGER Part Number
Barcode scanner	1500001316
Plug 4.0 mm	1500001317
Plug 4.7 mm	1500001318

12 Customer service

The ROTHENBERGER service locations are available to help you (see listing in catalog or online) and replacement parts and service are also available through these same service locations. Order your accessories and spare parts from your specialist retailer or using RoService+ online:

Phone: + 49 (0) 61 95 / 800 – 8200

Fax: + 49 (0) 61 95 / 800 – 7491

Email: service@rothenberger.com

www.rothenberger.com

13 Disposal

Components of the unit are recyclable material and should be put to recycling. For this purpose registered and certified recycling companies are available. For an environmental friendly disposal of the non-recyclable parts (e.g. electronic waste) please contact your local waste disposal authority.

For EU countries only:



Do not dispose electric tools with domestic waste. In accordance with the European Directive 2012/19/EU the disposal of electrical and electronic equipment and its implementation as national law, electric tools that are no longer serviceable must be collected separately and utilised for environmentally compatible recycling.

