

Coating
removal system

CRS External Control Unit 1210

Operation Manual, Volume 2

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ENRX®

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1 INTRODUCTION

Using this handbook, on-site operational personnel should be able to put the equipment into operation as well as undertake the daily operation of the equipment, and perform maintenance and simple repairs. In the event of more serious repairs or a breakdown, contact ENRX a.s or any ENRX Group company/agent.

1.1 How to Read the Manual

This induction heating system documentation is divided into three volumes: Frequency converter (FC) User Manual, Operation of ECU and System drawings.

Manual structure:

Volume 1, User Manual: Contains safety precautions, frequency converter's -installation, -user and -maintenance instructions. The local Operating panel is described for extended use i.e. FC's faultfinding and maintenance purpose.

Volume 2, Operation of ECU: This volume gives instructions on how to operate the External control unit (ECU) as the main control panel, at level 1 (operator) and level 2 (supervisor).

Volume 3, System Drawings: Contains technical tables with all the vital figures and measurements for the equipment. All drawings applicable for the system are listed and attached.

2 COATING REMOVAL EQUIPMENT OVERVIEW

The system consists of a frequency converter, high frequency power cables, hand held transformer (HHT) and a special designed coil with the control unit (ECU) attached. The frequency converter system is described in volume 1, CRS User manual. Use of the external control system (ECU) is extensively described in this document.

2.1 Transport, Storage and Installation

For equipment transport, storage and installation specifications, see volume 1, Frequency converter's User Manual. Install the equipment as described in volume 1, Frequency converter's User Manual. Installation instructions described in this volume applies to special equipment for the coating removal application.



Always comply to the safety precautions set out in this manual, all three volumes. For drawings and diagram related to installation see volume 3, system drawings.

2.1.1 Connecting and Using the Coil

There are two types of coils for the coating removal application; Spot heating coil and linear (scanning) heating coil.

- Spot heating coil: Leaving the coil in one position with the same energy and time, each "spot".
- Scanning heating coil: Moving the coil across the part to be heated with controlled power and/or speed to ensure the same energy input.

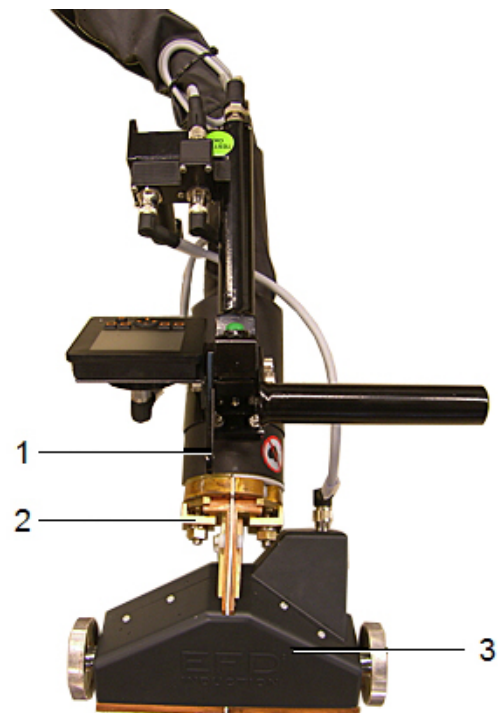


Fig. 2-1 Linear (scanning) heating coil connected
1) HHT 240. 2) HHT/coil connection. 3) Coil.



CAUTION! Follow the step by step procedure in the section “Connecting and Using the Coil”, volume 1, for both types. Also, refer to section “Maintenance”, in volume 1, for maintenance of the HHT and coil.

TEST RUN: When changing the induction coil or heating new materials, run tests to check the equipment settings.



The hand held transformer is a vulnerable part of the equipment and therefore must be handled with care.

3 REMOVAL OF COATING AND SEALANTS

Repeatability, ease of use and control is brought to this application from knowledge, experience and technique from the wide range of industries and applications. Different workpieces need different methods, but with all factors to consider it can be simplified into two elements;

- Time
- Power

The faster we heat the metal, the faster it cools, and the slower we heat, the slower the metal cools. For maximum performance, keep the power at the same rate and adjust the time or scanning speed to achieve the desired results. Coating disbonding temperatures are performed at 150°C–180°C.

Besides the three methods, spot, linear or direct, there are various types of metal, solid or pipe workpieces to consider. E.g. is it necessary to remove material on one side or both? A controlled process can apply heat to the top side only, or the top side and back side (through heating) in a one spot-heating application.

The one-side example below shows a thermocouple log when heating an 8 mm thick steel plate with a 5 mm gap (coating thickness) from one side using 20 kW for 5 seconds. The T1 curve is the top side and the T5 curve is the back side of the steel plate.

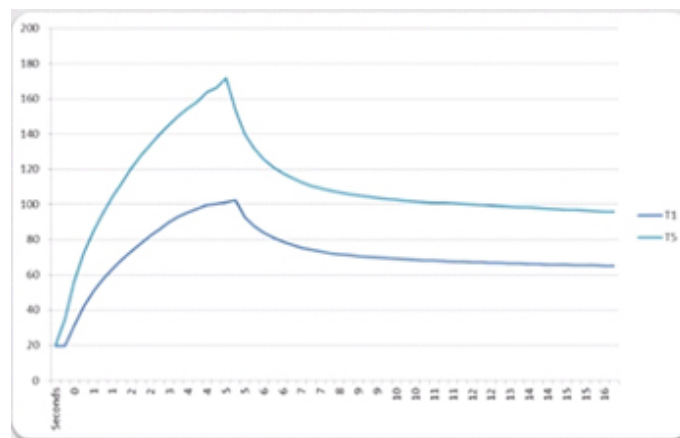


Figure 3-1 A thermocouple log showing temperature and time for one-sided removal

Example through heating: 12 mm thick steel plate with a 12 mm gap (coating thickness) from one side using a sequence consisting of:

- 20 kW for 1 sec.
- 11 kW for 3 sec.
- 7 kW for 3 sec.
- 5 kW for 6 sec.

This through heating capability can be used in cases where coatings are to be removed on both sides of a workpiece without overheating the top side. These heating controls can be stored in the internal memory to be recalled on demand.

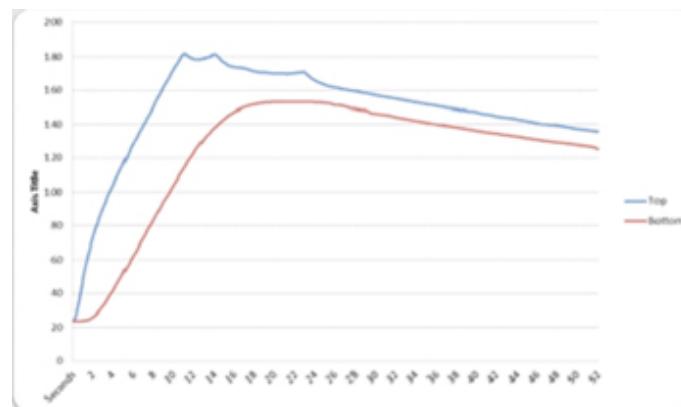


Figure 3-2 A thermocouple log showing temperature and time for through heating

Spot heating is used in cases of specialized coatings, especially tough, thicker coatings. If a spot heating coil is used, the power setpoint will be defined using a heating program. There are four different programs to choose from. See section 6 *EXTERNAL CONTROL UNIT OPERATION*.



The selected program must be based on tests. Always perform tests prior to a program selection.

Select a coil geometry that fits the workpiece. Use a timer, e.g. 4 seconds, at the selected power. Use an energy sequence, e.g. 3.5 seconds at 100% effect, then 0.5 seconds for 30%.

Linear/Scanning: Heating by auto, semi-auto or manually moving the induction coil (linear/scanning) is the typical process. Manual scanning however means that accurate temperature control is difficult, especially in challenging environments mostly reliant upon the operator. If a linear scanning coil is used, the power setpoint is set according to the coil speed (a tachometer is mounted on the coil to measure speed). The power setpoint will be smaller at low speed and higher at high speed. The correlation between coil speed and power setpoint is done using fixed parameters determined after calibration. Scanning is best done with fixed energy/speed/gap, but this is not always practical. E.g. where thicker steel is under the coating, a slightly higher power is required.



To maintain the heating effect, make sure both wheels on the linear/scanning coil are in touch with the scanning surface at all times.

4 COATING REMOVAL CONTROL SYSTEM

The Coating Removal System is designed to disbond coating from steel substrate by heating the steel. The specially designed control system (ECU) ensures that repeatable quality is achieved during the work process. The control system consists of a small ECU display with a CanOpen interface to the frequency converter. The ECU display has three modes. See section 6 *EXTERNAL CONTROL UNIT OPERATION*.

The system can be delivered as a single output or a twin output. The 'Twin' version features two independent power outputs that can operate simultaneously under identical or different parameters.



The frequency converter's local operating panel, is NOT intended to be used by the coating removal operator. The OPN access is PIN-code protected.

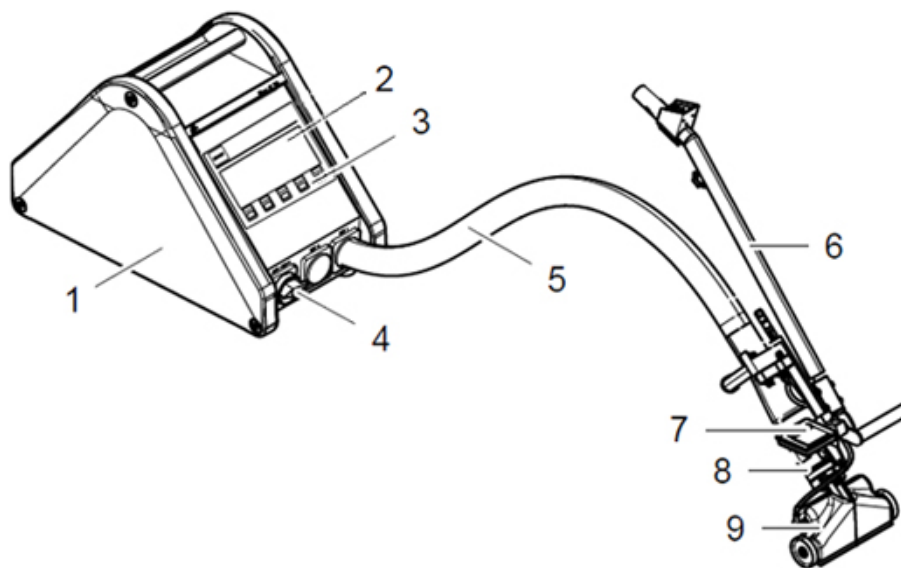


Figure 4–1 Coating removal system overview

- 1) Frequency converter. 2) OPN touch panel. 3) OPN panel push buttons. 4) Main power switch. 5) Flexibel power line.
6) Telescopic handle (optional). 7) External control unit (ECU). 8) Hand held transformer (HHT). 9) Coil (linear).

4.1 Handle with ECU 1210

The handle, mounted on the HHT, is equipped with two power-buttons with LED. For the coating removal system the power must always be controlled from the ECU. The ECU has a display showing output power and power loss in the coil. The setting must be set to obtain correct temperatures for coating removal. See further instructions set out in this volume.

Telescopic Handle (Optional)

If a telescopic handle (optional) is mounted as shown in Figure 4–1 *Coating removal system overview*, then the heat can be switched on from the power button on the telescopic handle. Thus, the operator has to disconnect the cable from the handle with the ECU and connect the cable from the telescopic handle to this plug.

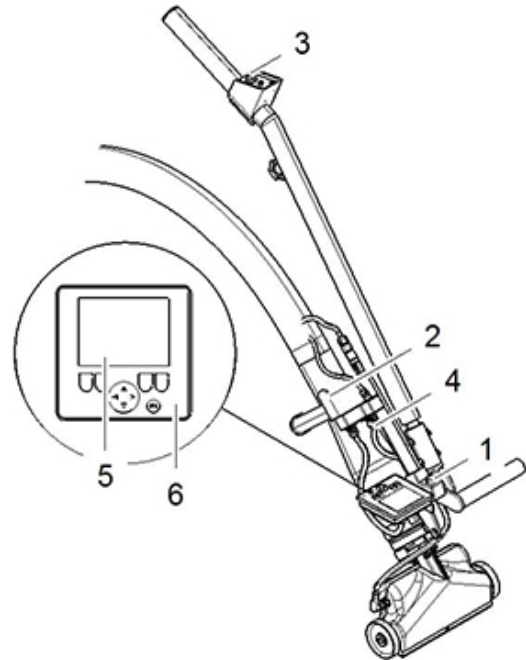


Fig. 4–2 HHT handle with ECU

1) Power ON/OFF. 2) Power ON/OFF. 3) Power ON/OFF on telescopic handle. 4) Telescopic handle plug. 5) ECU display with function s. 6) Status LED.



There are two power-on buttons on the handle with the ECU, right beside the ECU display or one on top of the telescopic handle. It is not possible to use both at the same time.

5 BEFORE START



PACEMAKERS: Anyone wearing a pacemaker may be at risk when in the vicinity of the induction heater's coil section. There is a risk that the electromagnetic fields produced by the induction heating unit may interfere with the performance of the pacemaker.



RISK OF BURNS: *Avoid wearing materials that conduct electricity close to the body. Energize the coil only when it is in the vicinity of the workpiece. It is the coil, which induces heat to metal, that can cause a risk of burns, not the flexible power hose or the hand held transformer. In case of metal implants, always consult a physician prior to use of electromagnetic equipment.*



DANGER! *To prevent electric shocks, do not open the equipment's covers or panels. Under any circumstances, do not operate the equipment without the covers and panels properly installed.*

5.1 Before Start

The local OPN on the frequency converter's cabinet comprises of touch panel display and push buttons. See Figure 4–1 *Coating removal system overview*. This local OPN is set to REMOTE by default, for coating removal systems. The DC power, fieldbus and PIN-code are all set to ACTIVE. Setpoint source is set to EXT.



The OPN is intended to be used only for service purpose or fault finding. The OPN is used for diagnostic status tests or setpoint re-settings. The OPN should not be used as a control station for production work.

1. Turn on the converter's main switch
2. READY or FAILURE
3. REMOTE
4. OUTPUT 1 and/or OUTPUT 2
5. Check that the ECU has power.
6. Check that the chiller has power (optional equipment).

6 EXTERNAL CONTROL UNIT OPERATION

The external control unit (ECU) display has three modes: Operator mode, Supervisor mode and Admin mode. In Operator mode it is possible to change from linear to spot heating. Supervisor mode is pin code protected, and Admin mode is for ENRX technical service with a pin code protection. All settings for the heating process can be done from the Supervisor mode on the display, so it will be easy to adjust the set point to get the correct heat for the process.

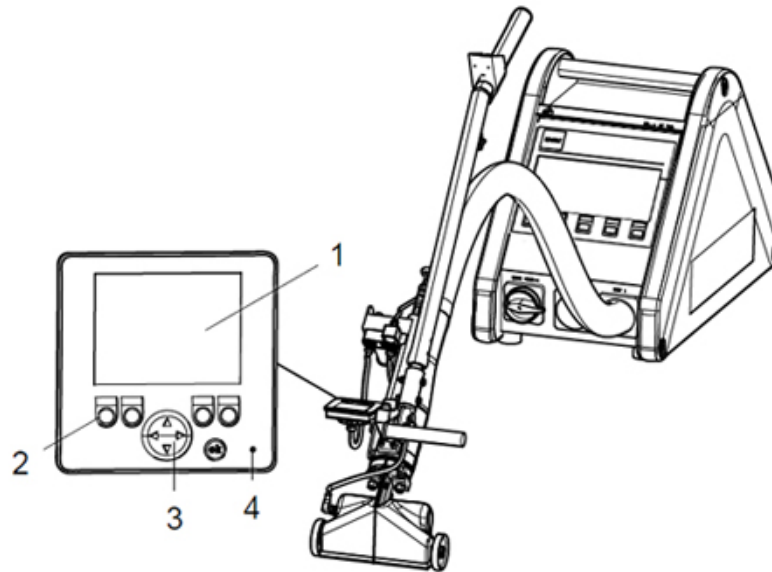


Figure 6–1 ECU 1210 controlling the Coating removal application.

1) Display (no touch). 2) Function s. 3) Navigation arrows. 4) Status LED.



The ECU is the main control interface in performing the Coating removal application. The frequency converter's local operating panel is intended to be used in the event that local operation is required, or if the equipment is controlled without utilizing the functionality provided by the bus-control. Normally, the ECU will be used to control power-ON.

6.1 External Control Unit (ECU) Navigation

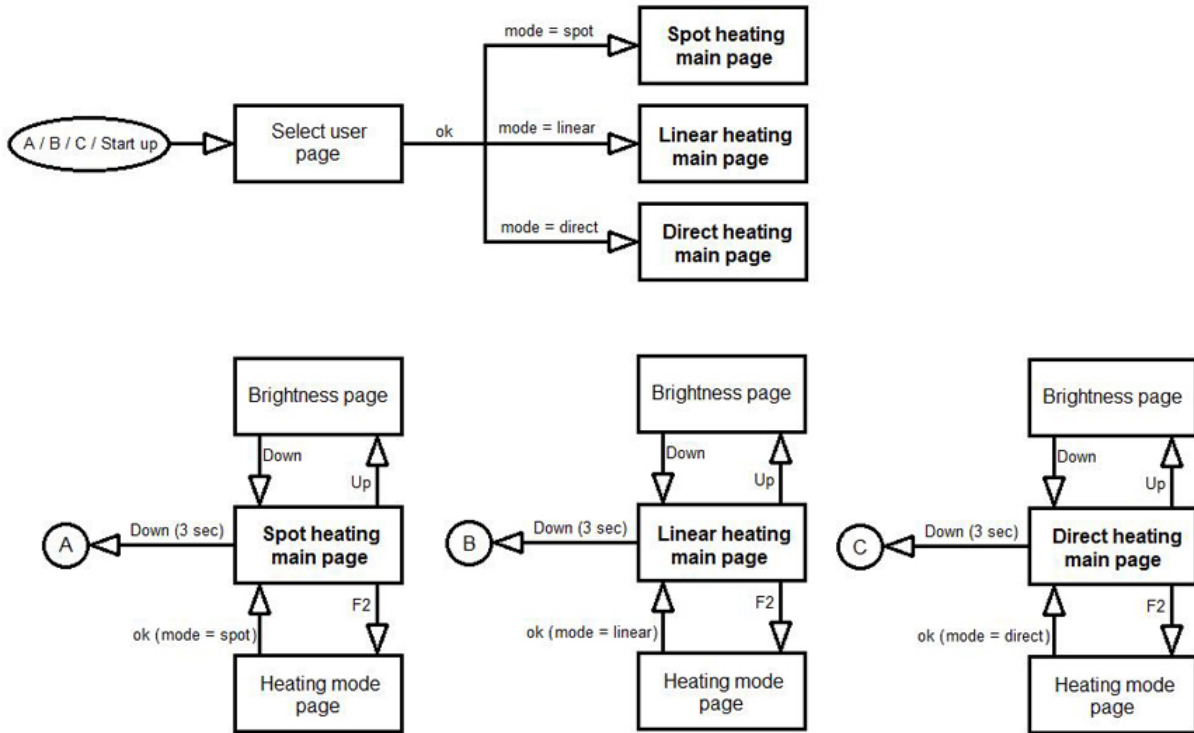


Figure 6-2 Page navigation chart for OPERATOR mode

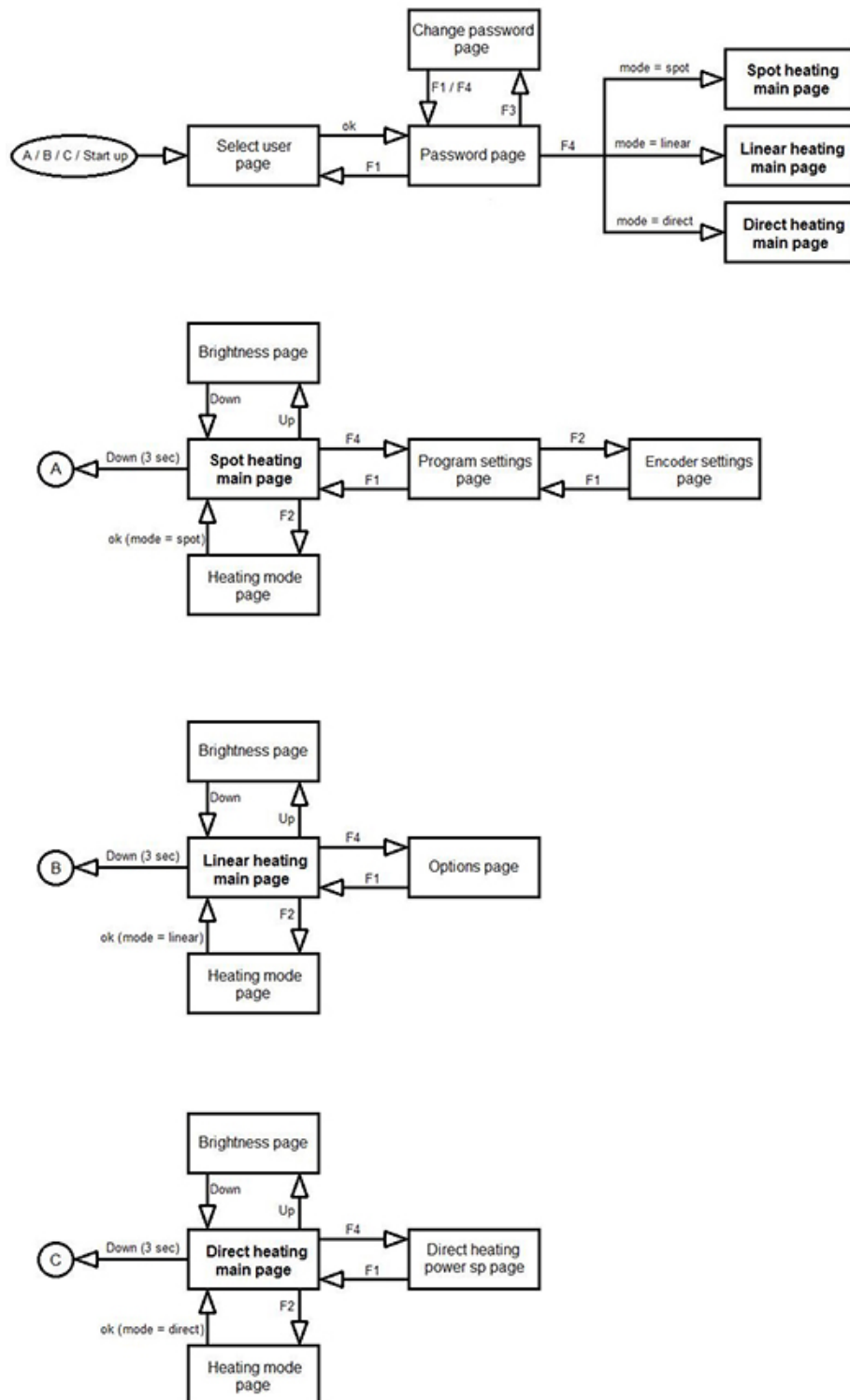


Figure 6-3 Page navigation chart for the pin coded SUPERVISOR mode

6.1.1 Select User Level

At power on, the Select user page will appear.

There are three different user levels that can operate the ECU controller.

1. OPERATOR
2. SUPERVISOR
3. ENRX

The selection of the desired user is done using the “Up/Down” arrows. The selected user is highlighted in blue. To confirm, press OK.



Fig. 6-4 Select user page

SUPERVISOR and ENRX users require a password in order to operate the ECU controller, while OPERATOR user does not require a password.

The ECU controller type is displayed in the lower left corner: **M** – Master, **S** – Slave.

6.1.2 Password Page for Supervisor

This page will appear when the Supervisor user is selected and OK is pressed. The password consists of three digits. By default, the page is not activated (not possible to change digits). Pressing OK will activate the page so that the user can navigate through digits and change the values.

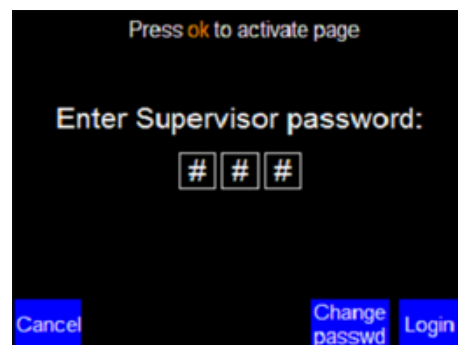


Fig. 6-5 Password page (not activated)

Navigate with left and right arrows. A digit is selected when it is highlighted in blue. In this state, use the up and down arrows to increase/decrease the value.

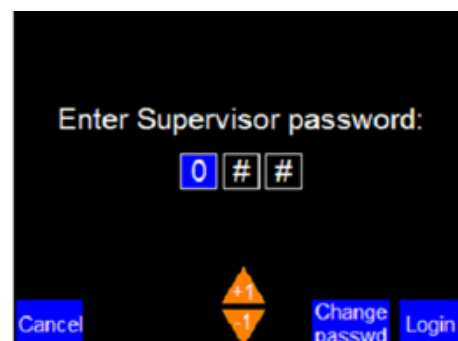


Fig. 6-6 Password page (activated)

Cancel login:

Cancel To cancel login operation, press F1. This operation will return the page to the Select User page.

Perform login:

Login Press F4 to log in (active or not active). If the password is correct the main page will appear (spot, linear or direct). A “Wrong password” warning will disappear as soon as a digit is modified, another digit is selected, or OK is pressed.

Change password

Change passwd Press F3 to change password. If the actual password is correct the change password page will appear.

6.1.3 Change Password Page (Supervisor)

The password consists of three digits. By default, the page is not activated (not possible to change digits). Pressing OK will activate the page so that the user can navigate through digits and change the values.



Fig. 6-7 Change password page (not activated)

Navigate with left and right arrows. A digit is selected when it is highlighted in blue. In this state, use the up and down arrows to increase/decrease the value.

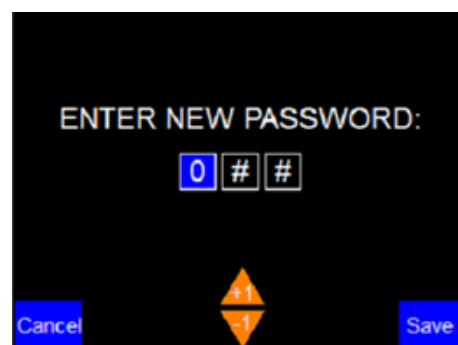


Fig. 6-8 Change password page (activated)

Cancel new password:

Cancel To cancel the password change operation, press F1. This will return the page to the password page and all password changes are discarded.

Save new password:

Save Press F4 to save the new password (activated or not). This will return the page to the password page and the new password is saved.

6.2 The three Heating Methods

- Spot Heating
- Linear Heating
- Direct heating

6.2.1 Spot Heating Main Page

In this mode, heating is done using a defined heating program. The user will select the appropriate heating program from a list of four different programs (labelled from 0 to 3). Each program can be defined by five different POWER SET POINTs.

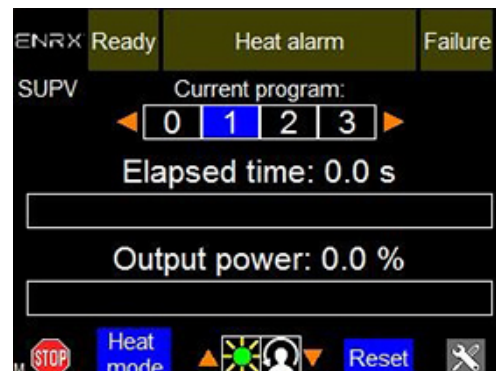


Fig. 6-9 Spot heating main page

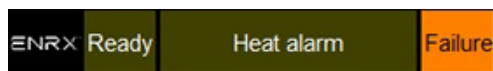
Converter status:

The frequency converter status can be “Ready” or “Heat”. This is the same status as displayed on the frequency converter.



Converter failure:

If there is a frequency converter failure, a “Failure” alarm will appear.



User Indication:

The current user is displayed below the ENRX logo: OPER – Operator, SUPV – Supervisor, ENRX – ENRX. The **Controller type** is displayed in the lower left corner: **M** – Master, **S** – Slave.

Heat alarm:

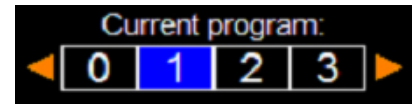
A “Heat alarm” will be activated if:

- The power loss is greater than the power loss limit (the power loss is the power lost due to the gap between coil and metal plate);
- The output power is greater than the power feedback for more than 0.5 seconds.



Program selection:

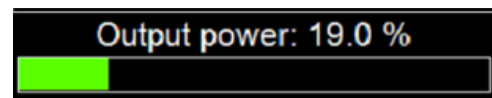
The selection of the desired program is done by pressing the left/right arrows. To increase the program number, press and hold the right arrow for 3 seconds. To decrease the program number, press and hold the left arrow for 3 seconds.

**Elapsed time:**

The elapsed program time is displayed in seconds and also as a bar graph to illustrate the progress.

**Output power:**

The frequency converter's output power is displayed in percentage and also as a bar graph.



See volume 1, frequency converter's User Manual, section Disturbance of operation, chapter Alarm messages, for alarms not listed in this volume.

Reset action:

Reset For resetting a frequency converter alarm and heat alarm (if any), press F3. Note that in case of a frequency converter alarm, if the source of the alarm is still active, the reset action will have no effect.

Program start:

To start a program, the frequency converter status must be "Ready" and no alarm active, and the main page displayed. For starting the program, press the HHT power ON button.

Program stop:

Press F1 or F2 to stop a program manually. The program can also be manually stopped by pressing the HHT power ON button.

Note: F2 is used to stop a program only if the program is running. Otherwise, F2 is used to navigate to the Heating Mode page.

Go to user page:

If a program is not running, press and hold the down arrow for 3 seconds to go to the User page.

Go to heating mode page:

Heat mode Note: F2 is used to navigate to the Heating mode page only if a program is not running. Otherwise, F2 is used to manually stop the program.



Go to brightness page:

Press the up arrow to go to the Brightness page.



Go to program settings page:

Press F4 to go to the Program settings page.

6.2.2 Linear Heating Main Page

In this mode, heating is done according to the COIL SPEED. The power set point will be smaller at low speed and higher at high speed. The correlation between COIL SPEED and POWER SET POINT is done using fixed parameters determined after calibration.

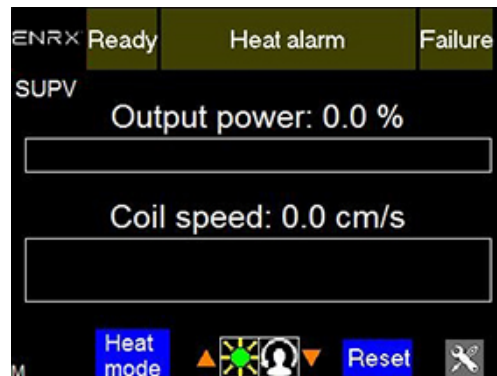


Fig. 6–10 Linear heating main page

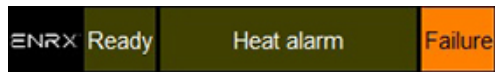
Frequency converter status:

The converter status can be “Ready” or “Heat”. This is the same status as displayed on the frequency converter.



Frequency converter failure:

If there is a frequency converter failure, a “Failure” alarm will appear.



User Indication:

The current user is displayed below the ENRX logo: OPER – Operator, SUPV – Supervisor, ENRX – ENRX. The controller type is displayed in the lower left corner: **M** – Master, **S** – Slave.

Heat alarm:

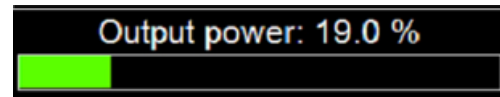
A heat alarm will be activated if:
 — The power loss is greater than the power loss limit (the power loss is the power lost due to the gap between coil and metal plate);
 — The output power is greater than the power feedback for more than 0.5 seconds.



Note! This alarm will not stop the heating process, but the speed bar graph will turn red. See Fig. 6–11 Coil speed indication: C.

Output power:

The converter's output power is displayed in percentage and also as a bar graph.

**Coil Speed**

Coil speed is displayed in cm/s and also as a bar graph. The right end of the bar graph shows the maximum coil speed. Normal coil speed: If the coil speed is below maximum coil speed, the bar graph is green. See Fig. 6–11 *Coil speed indication: A*.

Maximum coil speed is calculated dynamically based on power loss value (the power loss is the power lost due to the gap between coil and metal plate).

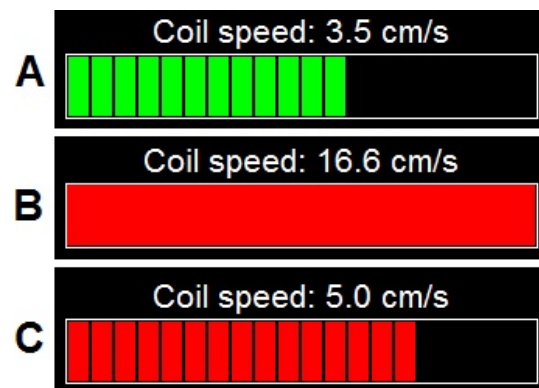


Fig. 6–11 Coil speed indication

Maximum speed is lower at high power loss and higher at low power loss. If the coil speed exceeds the maximum coil speed, the power set point becomes 100% (the maximum power supported by the frequency converter). In this situation the bar graph color is red and fills the entire bar graph range (See Fig. 6–11 *Coil speed indication: B*).

Reset action:

Reset

For resetting a frequency converter alarm and heat alarm (if any), press F3. Note that in case of a frequency converter alarm, if the source of the alarm is still active, the reset action will have no effect.

Heating:

Heating is running as long as the HHT power ON button is pressed, heat alarm - power loss too big is not active, and main page is displayed.

Go to user page:

If the heating is not running, press and hold the down arrow for 3 seconds to go to the User page.

Go to heating mode page:

Heat mode

Press F2 to go the Heating mode page.

Go to brightness page:

Press the up arrow to go to the Brightness page.

6.2.3 Direct Heating Main Page

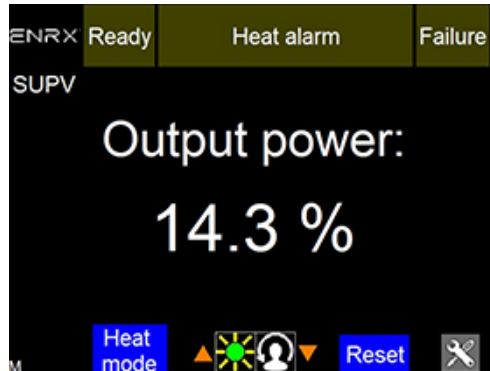


Figure 6–12 Direct heating main page

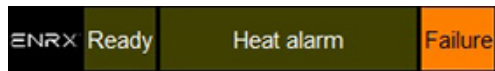
Frequency converter status:

The converter status can be “Ready” or “Heat”. This is the same status as displayed on the frequency converter.



Frequency converter failure:

If there is a frequency converter failure, a “Failure” alarm will appear.



User Indication:

The current user is displayed below the ENRX logo: OPER – Operator, SUPV – Supervisor, ENRX – ENRX. The controller type is displayed in the lower left corner: **M** – Master, **S** – Slave.

Heat alarm:

A heat alarm will be activated if:
 — The power loss is greater than the power loss limit (the power loss is the power lost due to the gap between coil and metal plate);
 — The output power is greater than the power feedback for more than 0.5 seconds. (To disable this alarm go to the Parameters page and set the Power margin value to “Alarm off”.)



Output power:

The converter’s output power is displayed in percentage and also as a bar graph.

Reset action:

Reset For resetting a frequency converter alarm and heat alarm (if any), press F3. Note that in case of a frequency converter alarm, if the source of the alarm is still active, the reset action will have no effect.

Heating:

Heating is running as long as the HHT power ON button is pressed, heat alarm - power loss too big is not active, and main page is displayed.



Go to user page: If the heating is not running, press and hold the down arrow for 3 seconds to go to the User page.



Go to heating mode page: Press F2 to go the Heating mode page.



Go to power set point page: Press F4 to go to the Power set point page



Go to brightness page: Press the up arrow to go to the Brightness page.

6.3 Brightness Page

The brightness page can be accessed only from the main page (spot, linear or direct) by pressing the up arrow.

Pressing F3 will decrease brightness by 5% while pressing F4 will increase brightness by 5%. Minimum brightness is 1%.

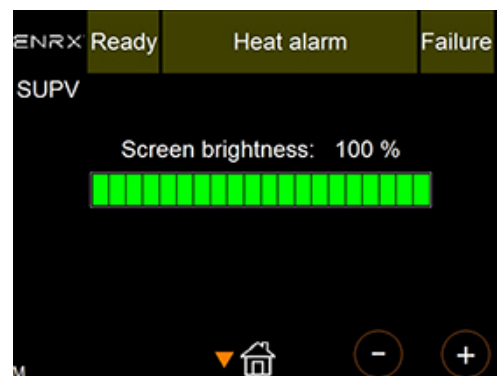


Fig. 6-13 Brightness page

Frequency converter status alarms:

Program status and alarms will be shown on this page too.

Program stop:



In spot heating mode, press F1 or F2 to stop a program manually. The program can also be manually stopped by pressing the HHT power ON/OFF button.

User indication:

The current user is displayed below the ENRX logo: OPER – Operator, SUPV – Supervisor, ENRX – ENRX.

Return to main page:



Press the “Down” arrow to return to the main page (spot, linear or direct).

Controller type:

The controller type is displayed in the lower left corner: **M** – Master, **S** – Slave.

6.4 Heating Method

The heating mode page can be accessed only from the main page (spot, linear or direct) by pressing F2. Note that if a program is running (spot, linear or direct), or heating is running (spot, linear or direct), this operation is not possible.

The selection of desired heating mode is done using up and down arrows. The selected heating mode is highlighted in blue. To set the selected heating method, press OK. This last operation will change the page to the main page (spot, linear or direct main page, depending on the selected heating method).

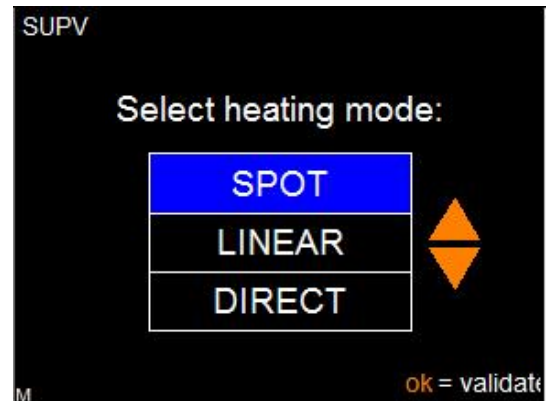


Fig. 6-14 Heating mode page

User indication:

The current user is displayed in the upper left corner: OPER – Operator, SUPV – Supervisor, ENRX – ENRX.

Controller type:

The controller type is displayed in the lower left corner: **M** – Master, **S** – Slave.

6.5 Program Setting Page (Supervisor)

The program setting page can be accessed only from the main page (spot heating) by pressing F4. This page is used to define the structure of the heating programs. A maximum of four programs can be defined.

A program has three segments. Each segment has the following structure:

- Power set point
- Time

By default, the page is not activated (not possible to change parameters). In this state, the structure displayed is for the current program (the one selected on the main page – spot heating).

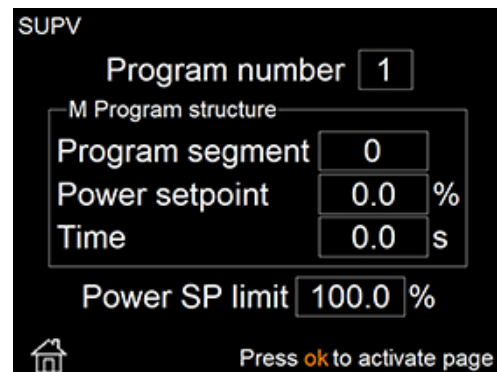


Fig. 6–15 Program settings page (not activated)

Pressing OK (“Press ok to activate page”) will activate the page so that the user can navigate through parameters and change the values. Navigation is done by pressing the up and down arrows. A parameter is selected when it is highlighted in blue. In this state, the user can modify it by pressing the left and right arrows and/or F3/F4.

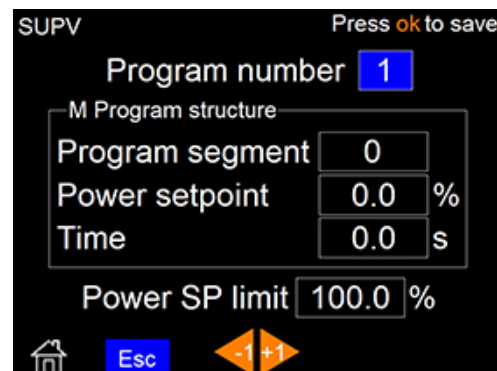


Fig. 6–16 Program settings page (activated)

SAVE/RESTORE functionality: To keep the changes, press OK (“Press OK to save”). Press F2 to discard the changes (to restore parameters to the values they had before the page was activated, press ESC).



If a program is running, it is not possible to change parameter values. Only segment number is changeable in order to see parameter values.

User Indication:

The current user is displayed in the upper left corner: OPER – Operator, SUPV – Supervisor, ENRX – ENRX.

Controller type:

The controller type is displayed in the program structure group label: **M** Program structure – Master, **S** Program structure – Slave.

**Go to main page (spot heating):**

Press F1 to return to the main page (spot heating). If the page is activated this operation will discard any changes.

Program number:

Scope: Select a program in order to define its structure; PROGRAM NUMBER (value) 0–3. Modify with the increase/decrease arrows.

Program segment:

Scope: Select a segment in order to define its structure; PROGRAM SEGMENT (value) 0–2. Modify with the increase/decrease arrows.

Power setpoint:

Scope: The power set point for the current segment of the current program (specific to each segment of each program); POWER SETPOINT (value) 0.0% — 100.0%. Modify with the increase/decrease arrows.

Time:

Scope: The time for the current segment of the current program (specific to each segment of each program); TIME (value) 0.0s – 3276.7s. Modify with the increase/decrease arrows.

Power SP Limit:

Scope: Set the output power limit; POWER SP LIMIT (value) 0% — 100%. Modify with the increase/decrease arrows.

6.6 Linear Heating Parameters Page (Supervisor)

The linear heating parameters page can be accessed only from the main page (linear heating) by pressing F4. This page is used to define linear heating specific parameters.

By default, the page is not activated (not possible to change parameters). Pressing OK (“Press OK to activate page”) will activate the page so that the user can navigate through parameters and change the values. Navigation is done by pressing the up and down arrows. A parameter is selected when it is highlighted in blue. In this state the user can modify it by pressing the left and right arrows and/or F3/F4.

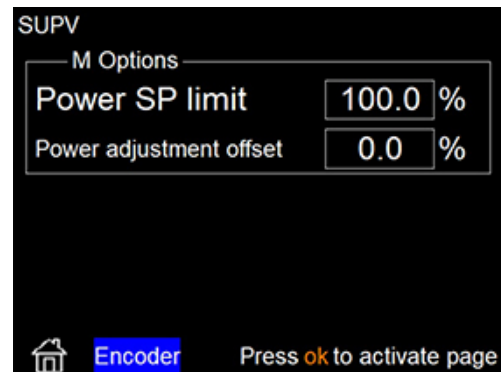


Fig. 6–17 Linear heating parameters page (not activated)

SAVE/RESTORE functionality: To keep the changes, press OK (“Press OK to save”). Press F2 to discard the changes (to restore parameters to the values they had before the page was activated, press ESC).



Fig. 6–18 Linear heating parameters page (activated)

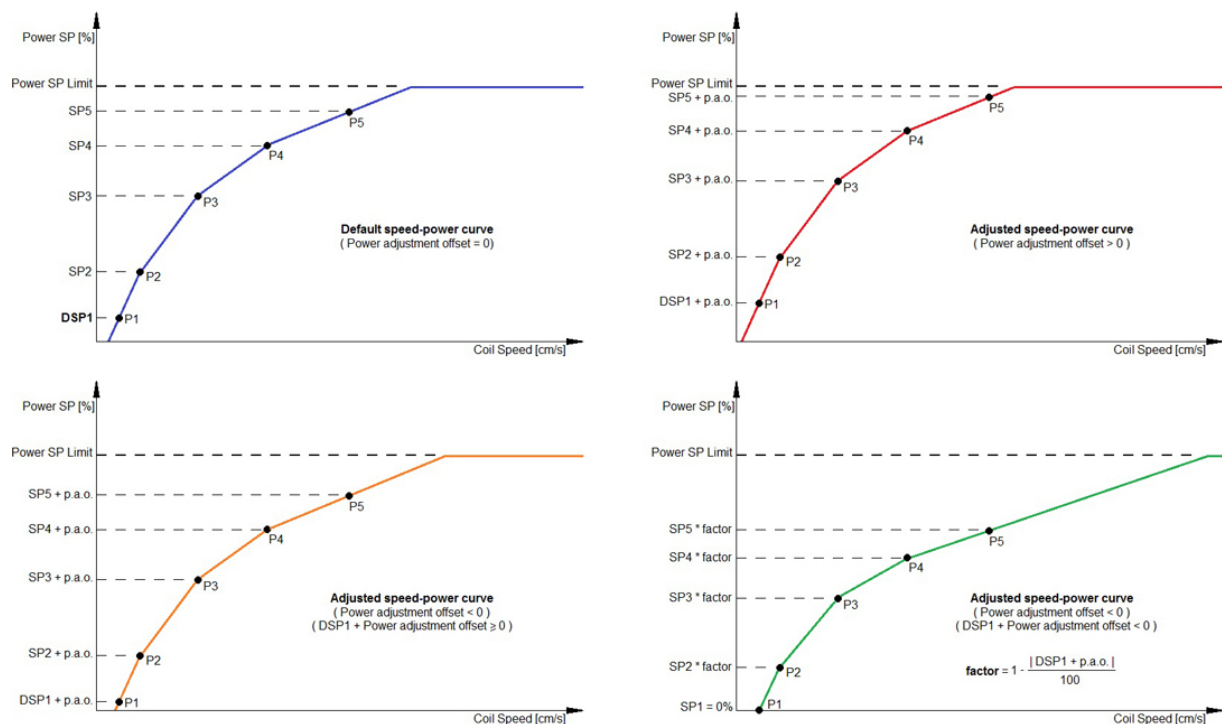


Figure 6–19 Power curve accordingly to speed

User indication:

The current user is displayed in the upper left corner: OPER – Operator, SUPV – Supervisor, ENRX – ENRX.

Controller type:

The controller type is displayed in linear heating parameters group label:
M Linear heating parameters – Master, **S** Linear heating parameters – Slave.

Go to main page (Linear):



Press F1 to return to the main page (linear). If the page is activated this operation will discard any changes.

Power adjustment offset:

Scope: Modify power adjustment offset; POWER ADJUSTMENT OFFSET (value) –100.0% — (100–DSP1)%. Modify with the increase/decrease arrows. See Figure 6–19 *Power curve accordingly to speed*

Power SP limit:

Scope: Set output power limit; POWER SP LIMIT (value) 0% – 100%. Modify with the increase/decrease arrows.

Go to encoder settings page:

When the page is not activated, press F2 to go to the encoder settings page.

6.7 Direct Heating Power Set Point Page (Supervisor)

The direct heating power set point page (supervisor) can be accessed only from the main page (direct heating) by pressing F4. This page is used to define the power set point to be used in direct mode.

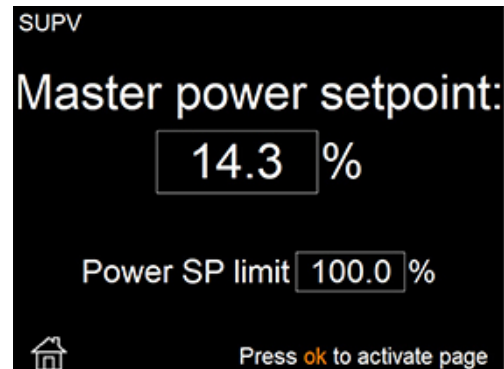


Fig. 6-20 Direct heating power set point page (not activated)



Fig. 6-21 Direct heating power set point page (activated)

User indication:

The current user is displayed in the upper left corner: OPER – Operator, SUPV – Supervisor, ENRX – ENRX.

Controller type:

The controller type is displayed in the linear heating parameters group label: **M** Linear heating parameters – Master, **S** Linear heating parameters – Slave.

Go to main page (Direct):

Press F1 to return to the main page (linear). If the page is activated this operation will discard any changes.

Power/Slave power set point:

Scope: Define the power set point to be used in direct mode; value: 0.0% — 100.0%.
Modify with the increase/decrease arrows.

Power SP Limit:

Scope: Set the output power limit; POWER SP LIMIT (value) 0% — 100%. Modify with the increase/decrease arrows.

6.8 Encoder Settings Page

The encoder settings page can be accessed only from the linear heating parameters page. To access the page, press F2 when the page is not activated. This page is used to define the encoder node number.

By default, the page is not activated (not possible to change parameters). Pressing OK (“Press OK to activate page”) will activate the page so that the user can change the node number value.

When the page is activated, the node number parameter is highlighted in blue. To modify it, press the “Left/Right” arrows once.

The page has a “save/restore” functionality: After modifying the parameter the user must press OK (“Press OK to save”) to keep the changes. To discard the changes, the user must press F2 (restores the parameter to the value it had before the page was activated).

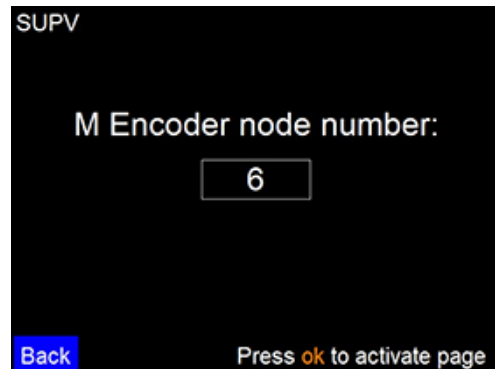


Fig. 6–22 Encoder settings page (not activated)

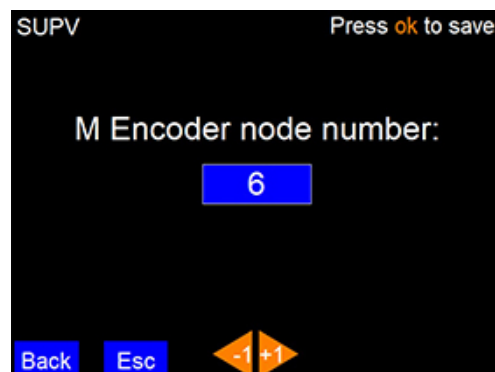


Fig. 6–23 Encoder settings page (activated)



It is not possible to change the parameter value while heating is running.

User indication:

The current user is displayed in the upper left corner: OPER – Operator, SUPV – Supervisor, ENRX.

Controller type:

The controller type is displayed in the parameter label: M Encoder node number – Master, S Encoder node number – Slave.

Go back to parameters page:

Press F1 to return to the parameters page. If the page is activated, this operation will discard any changes.

Encoder node number:

- Scope: this is the node number of the encoder that is going to be used together with the actual controller;
- Values: 6 for master, 7 for slave;
- Modify: by 1 (“Left/Right” arrows).