Water Analysis

MACHEREY-NAGEL

NANOCOLOR® VARIO HC

- Handbuch
- Manual

1. Technical Data

NANOCOLOR® VARIO HC:	Programmable heating block for chemical-analytical digestions with 12 holes for test tubes with 16 mm outer diameter with active cooling function
Display:	Coloured, backlit LCD touchscreen
Operation:	Display menu guidance via touchscreen
Temperature range:	40–160 °C (1 °C increments)
Temperatures:	5 pre-programmed temperatures: 70 / 100 / 120 / 148 / 160 °C 7 free memory locations for individual temperature settings
Temperature stability:	± 1 °C (according to DIN, EN, ISO and EPA methods)
Warm-up time:	from 20 °C to 160 °C within 5 minutes
Cooling time:	from 160 °C to 50 °C within 10 minutes
Turn-off temperature:	free selection within the entire temperature range (10 °C increments)
Heating times:	4 pre-programmed heating times: 30 min, 60 min, 120 min, cont 8 free memory locations for individual time settings
Time range:	0h:01min–9h:59min (1 min increments)
Safety:	Replaceable safety covers as contact protection Lockable electro-magnetic protective lids Overheating protection
Interface:	Bidirectional serial RS 232, USB A (master) and USB B (slave) Allows connection of *NANOCOLOR®* T-Set (REF 919 917) (optional fully automatic calibration and preparation of test certificates for instrument control and monitoring)
Update:	Via Internet and USB stick
Power supply:	110–230 V ~, 50 / 60 Hz
Power consumption:	150 / 550 VA
Dimensions:	290 x 287 x 146 mm
Weight:	approx. 3.2 kg
Marking:	CE
Warranty:	2 years

Declaration of conformity:

CE These instruments conform to the following directives:
2006/95/EC – Low-Voltage Directive
2004/108/EC – EMV Directive

2. Operation

2.1. Initial operation

Remove the heating block and all accessories from the packing case. Place the heating block at room temperature on a dry and level surface, protected from direct sunlight. Connect the heating block to the mains supply and switch on the instrument with the main switch on the back.

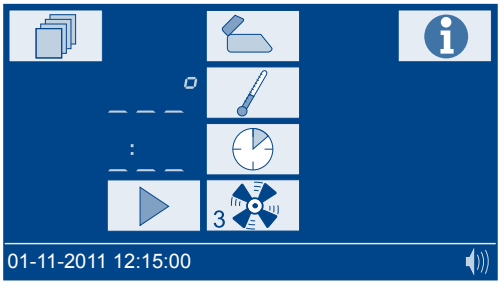
Info

Serial number, actual software version and bootloader version are displayed. Press the info screen to return to the start screen.

2.2. Touchscreen-Display

The heating block is equipped with an illuminated coloured touchscreen display. The display is used by touching specific buttons. Familiarize yourself with the functions of the touchscreen by pressing individual buttons with your finger or a special pen. After touching a button, the relevant function is activated. Do not use sharp or pointed instruments to operate the touchscreen. Clean the touchscreen display with a microfibre cloth.

2.3. Program selection



Selection of a pre-programmed temperature. The temperature used last is always displayed first. Press the buttons repeatedly to scroll through the temperatures. Only programmed temperatures are displayed. The temperature values are always displayed in ascending order.

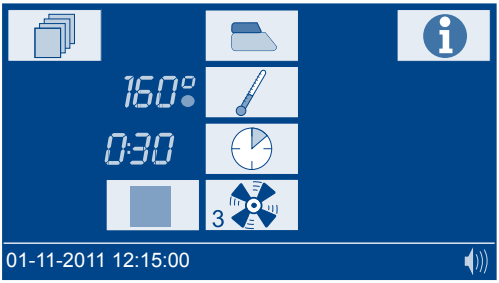
Selection of a pre-programmed heating time. The time used last is always displayed first. Press the buttons repeatedly to scroll through the heating times. Only programmed times are displayed. The time values are always displayed in ascending order.

Start of a selected program.
While warming up, the selected temperature is flashing in the display.
When the desired temperature is reached, a signal tone sounds and the selected time starts to run.

Enable / disable the automatic cooling function once the reaction time has elapsed.

Open / Lock the electro-magnetic protective cover.

While warming up, the current temperature can be displayed by pressing the  button.



A running program can be stopped at any time. A program stop is triggered by pressing the  button.

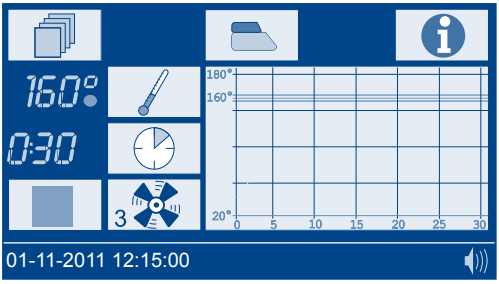
STOP appears in the display.

Stop must be confirmed within 5 s by pressing the  button again, otherwise the program continues to run.

At the end of cooling, a signal tone sounds and END appears in the display.

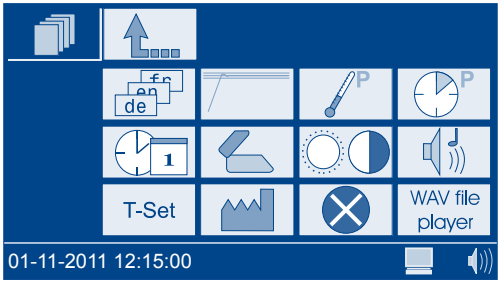
Press one of the following buttons ( ,  , ) to call up the last program again.

Graphic-mode



Press the graphic to zoom in and out.

3. Menu



General buttons:

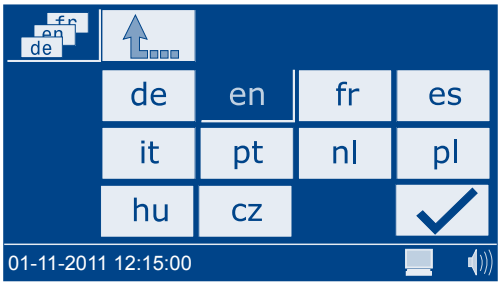
Esc

Back to the main menu without confirming or saving changes.

OK

Changes are confirmed and/or saved.

Language

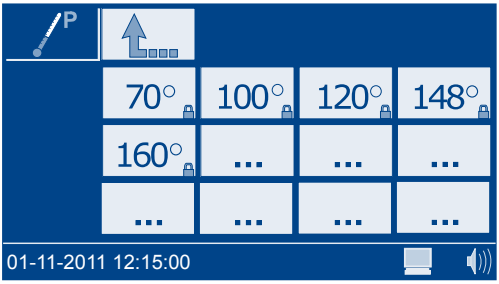


Select a language and confirm with .

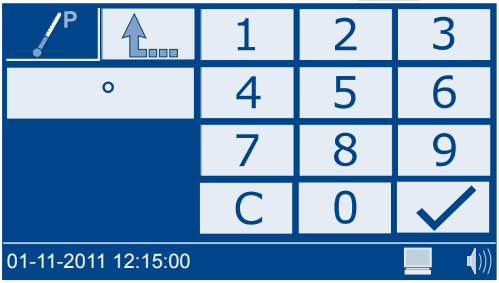
Graphic-mode

A window is displayed to enable or disable the graphic mode. Select the required setting and confirm with .

Temperature programming

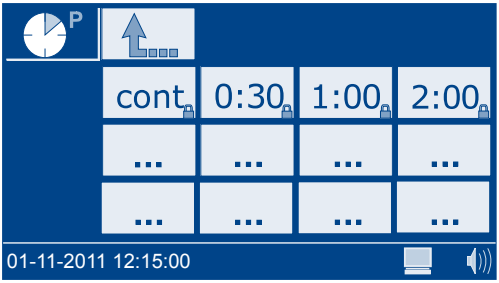


Select an empty slot by pressing ... .

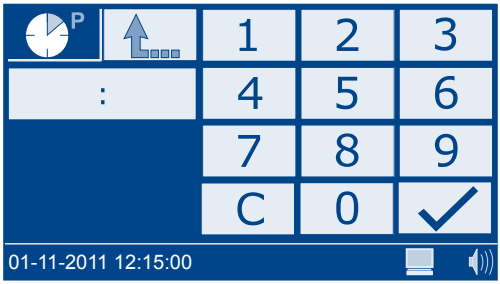


Enter the desired temperature in the range from 40 to 160 °C and confirm with ✓.
User defined temperatures can be deleted or edited in the same way.
Pre-programmed temperatures can not be deleted or edited.

Heating time programming

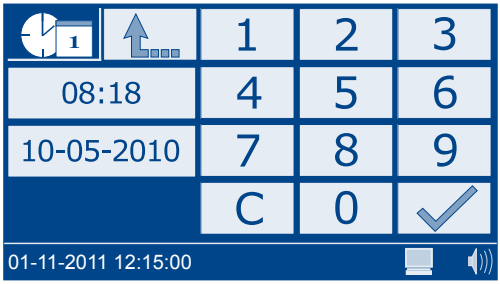


Select an empty slot by pressing ... .



Enter the desired heating time in the range from 0h:01min–9h:59min and confirm with .
User defined heating times can be deleted or edited in the same way.
Pre-programmed heating times can not be deleted or edited.

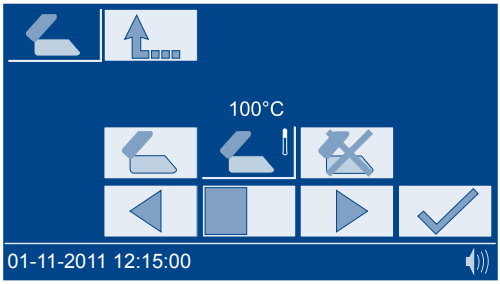
Date / time



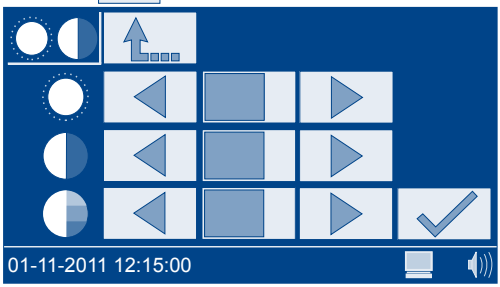
Enter the time in the format hh:mm. Select the field for the date by touching.
Enter the date in the format dd-mm-20yy and confirm with .

Protective lid warning

A window is displayed to enable or disable the protective lid warning.
A warning dependent of the temperature is possible as well .
You can adjust the temperature by pressing the buttons.
Select the required setting and confirm with .



Display



Press ◀ ▶ to adjust brightness ☼, contrast ◑ and saturation ◑ to the surrounding light conditions.

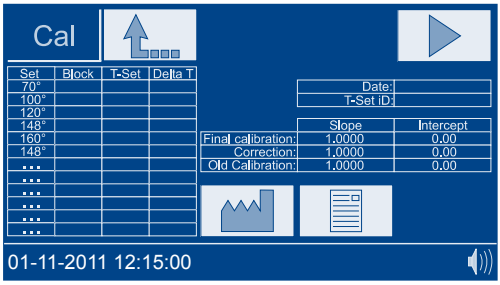
Sound

Press ◀ ▶ to adjust the sound level.
The icon in the display shows the adjusted sound level.

T–Set T-Set

Press Cal to select the calibration mode.
The calibration mode allows you to calibrate all programmed temperatures.
After calibration, press ✓ to confirm and save the new calibration data.

Press Test to select the test mode.
The test mode allows you to test all programmed temperatures, the calibration is not changed.



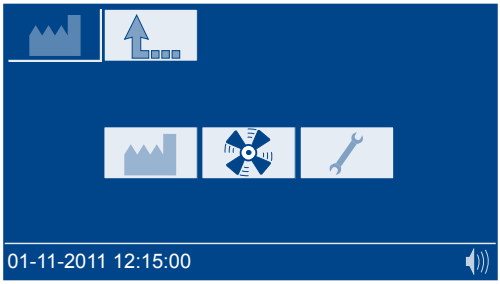
Press ▲ to restore factory settings.
Press ▶ to start the program.

Deviations in temperature are displayed in different colors:

Deviation	**Color**
< 1 °C	green
1 < x < 2 °C	yellow
> 2 °C	red

Press to save the calibration or test protocol on a USB stick.

System settings



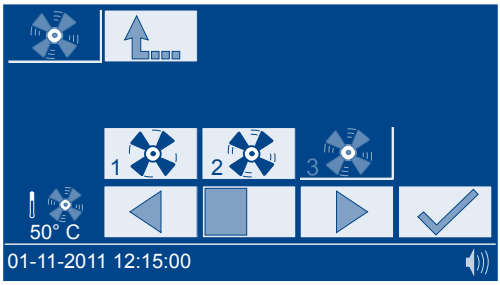
Once you press , a new window appears to restore the following factory settings.

- User-defined temperatures
- User-defined heating times
- Display settings
- Sound settings
- Fan settings

Select the required setting and confirm with .

Once you press a new window appears to adjust the fan speed and its turn-off temperature.

Confirm your selection with .



Error list

A window with an error list is displayed.

Disposal in accordance with EU Directive 2002/96/CE
In compliance with local and national legal regulations (EU Directive 2002/96/CE), the MACHEREY-NAGEL company disposes old instruments free of charge.
Note: With effect from August 2005, disposal using public waste disposal facilities is no longer permitted. In the case of disposal, please contact your MACHEREY-NAGEL representative.