NucleoCounter® SCC-100™

User's Guide

Revision 1.4

Technology that counts

chemometec

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NucleoCounter® SCC-100™

Somatic Cell Counter

P/N 991-0200 (English)

Revision 1.4

December, 2006

ChemoMetec A/S

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Caution!

This equipment must be operated as described in this User's Guide. Please read the entire guide before attempting to use this unit. Please pay attention to that gloves or protective clothing are not worn on the illustrations/pictures shown in this User's Guide. However, ChemoMetec A/S does recommend that the user wear suitable protective clothing etc.

Contacting support

Technical information including product literature, answers to questions regarding the operation of the NucleoCounter® SCC-100™ not covered in this document and information on software upgrade is available through the following:

- For e-mail support, send questions to NucleoCounter® SCC-100™ Technical Support on the address **support@chemometec.dk**
- To speak with a Technical Support Specialist, call (+45) 48 13 10 20.

Please note the NucleoCounter® SCC-100™ serial number and have it available when contacting ChemoMetec A/S for support. The NucleoCounter® SCC-100™ serial number is found on the label affixed to the bottom of the instrument and in the display upon start-up.

Sales and ordering information

For sales assistance with NucleoCounter® SCC-100™ or the SomaticView™ software, to place an order for a NucleoCounter® SCC-100™ or consumables, call (+45) 48 13 10 20, fax (+45) 48 13 10 21, or send e-mail to **sales@chemometec.dk**

Disclaimer Notices

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ChemoMetec A/S reserves the right to make changes in the product design without reservation and without notification to its users.

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Declaration of Conformity

Name of product: NucleoCounter®
Type: SCC-100

Other identifying data: Part no. 900-0200

The product complies with requirements of the following directives:

89/336/EEC - Electromagnetic Compatibility (EMC)

89/392/EEC - Machinery Directive

Harmonized standards, which have been used:

EN61326: 1997+A1: 1998 (Class B) +A2: 2000, Electrical equipment for measurement, control and laboratory use – EMC requirements (emission and immunity). Annex B and C from A1: 1998 is used.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Date: 2005-11-04

Signed: 

Name: Frans Ravn

Position: Chief Technology Officer

Name and address of manufacturer:

ChemoMetec A/S
Gydevang 43
DK-3450 Allerod
DENMARK

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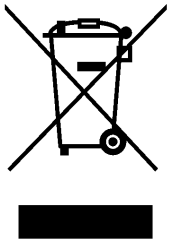
WEEE directive information – Europe only

Correct Disposal of This Product
(Waste Electrical & Electronic Equipment) - Europe only



This marking shown on the product or its literature, indicates that it should not be disposed together with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

This information is listed in “Appendix 1: WEEE directive information in more EU languages”.

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Introduction and intended use

The NucleoCounter SCC-100 is intended for use for the determination of somatic cell concentration in milk samples.

The instrument is a part of the NucleoCounter SCC-100 System, which also comprises the disposable SCC-Cassette and the lysis buffer (Reagent C).

The NucleoCounter SCC-100 System allows reliable, fast and objective somatic cell counting to be carried out based on an automated method of fluorescence microscopy. The system enables the user to stain and count cells with good protection against being exposed to potentially hazardous DNA staining dyes.

The NucleoCounter SCC-100 is developed as a stand-alone instrument but optionally it can be connected to an external printer or to a computer via an USB-interface. When connected to a computer the SomaticView software offers various features such as documentation of the obtained results. For further description of the software please refer to the SomaticView User's Guide.

The NucleoCounter SCC-100 has the ChemoMetec part number 900-0200. Refer to section 9.1 with respect to other part numbers of the items of the NucleoCounter SCC-100 System.

The NucleoCounter SCC-100 System is **not** intended for human or veterinary diagnostic purposes.

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Warnings and precautions

Wherever the ⚠ symbol appears on the NucleoCounter instrument, it indicates that the manual must be consulted for precautions and warnings.

Power and cables

Use the shielded USB and printer cables supplied by ChemoMetec A/S to ensure that you maintain the appropriate EMI classification for the intended environment.

⚠ The USB interface connector of the NucleoCounter must only be connected to SELV circuits. External computing devices connected to the USB interface connector of the NucleoCounter has to comply with the standards, UL 1950 and IEC/EN 60950.

Table 1. Description of the NucleoCounter USB interface connector

Pin no.	Name	Maximum Voltage level[1]
1	+5V	+5 VDC
2	D-	+3.5 VDC
3	D+	+3.5 VDC
4	DGND	0 VDC
Metal enclosure	Shield (connected to DGND)	0 VDC

⚠ The USB interface connector of the NucleoCounter must only be connected to SELV circuits. External computing devices connected to the USB interface connector of the NucleoCounter has to comply with the standards, UL 1950 and IEC/EN 60950.

⚠

Use the shielded printer cable supplied by ChemoMetec A/S to ensure that you maintain the appropriate EMI classification for the intended environment.

⚠ The printer interface connector of the NucleoCounter must only be connected to the printer supplied by ChemoMetec A/S. External computing devices connected to the printer interface connector of the NucleoCounter has to comply with the standards, UL 1950 and IEC/EN 60950.

[1] In normal operation mode (refers to Pin no 4)

Table 2 Description of the NucleoCounter Printer Output connector

Pin no	Name	Maximum Voltage level[2]
1[3]		
2	Rx	±10 VDC
3	Tx	±10 VDC
Metal Enclosure	DGND	0 VDC

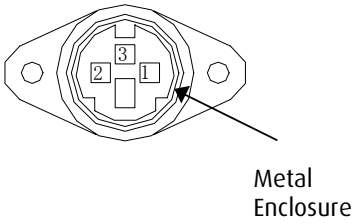

Figure 1 Printer Output connector seen from the cable entry side.

NucleoCounter is powered by an external 12VDC power supply. For safe use, please follow the instructions for connecting the power supply.

⚠ The NucleoCounter shall only be used with one of the following external power supplies:

- Power supply Class I, Proton Electronic Industrial Co. Ltd., model SPN-260-12, input rated 100-240 Vac, 50-60Hz, 1.6 A. Output rated 12 Vdc, 4.3 A.
- Power Supply Class I, Powerbox Europe AB, model EBH 03 131, input rated 100-240 Vac, 47-63 Hz, 0.8A. Output rated 11-13 Vdc, 2.7 A.
- Power supply Class II, Celetron USA Inc., model ZVC40LT12E, input rated 100-240 Vac, 50-60Hz, 1.2 A. Output rated 12 Vdc, 3.3 A.

⚠ The detachable power supply cord set and appliance inlet of the external power supply are considered as the disconnecting device.

⚠ The mains supply cord and plug of the external power supply shall comply with any national regulations.

[2] In normal operation. Refers to DGND Metal Enclosure. Taken from the datasheet for MAX202ECSE.

[3] There is no signal connected to pin 1.

⚠ The user shall be made aware of that, if the NucleoCounter and the external power supply is used in a manner not specified by the manufacturer, the protection provided by the NucleoCounter and the external power supply may be impaired.

Electromagnetic interference

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution! Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Cassettes, Reagents and Dispensers

With respect to usage and handling of cassettes, lysis buffers and dispensers, please refer to appropriate package inserts for these items.

Caution! When using a bottle-top dispenser: To protect against accidental splashes protective clothing, eye protection and gloves must be worn when using potentially hazardous liquids.

General

Any biological specimen should be handled as if it is capable of transmitting infectious disease and disposed of with proper precautions according with federal, state and local regulations.

Avoid specimen contact with skin or mucous membranes.

Never pipette by mouth.

Avoid cross contamination of the samples when preparing of the samples. This can compromise the quality of the results.

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1 Inspection and Unpacking of Equipment

Upon receiving the order from ChemoMetec A/S, the box or boxes should be carefully inspected for any damage that may have occurred during shipping. Any damage must be reported to the carrier and to ChemoMetec A/S immediately.

Unpack the order, saving the packing materials for possible later use. Also be sure to save the User's Guide, for instruction and reference.

Verify the ChemoMetec packing list received refers to the correct and ordered materials, and that nothing is missing.

If any part of the order was damaged during shipping or is missing, or fails to operate, please contact ChemoMetec A/S.

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2 Introducing the NucleoCounter SCC-100

The NucleoCounter method provides a fast alternative to the manual techniques, yielding objective and reliable results. Furthermore the NucleoCounter technology provides improved safety to the user compared to other comparable methods.

The NucleoCounter system is comprised of the NucleoCounter instrument for particle analysis, SCC-Cassette for sample handling and the Lysis buffer for cell lysis (please refer to appropriate Application Notes provided by ChemoMetec concerning lysing of cells). Basics of the NucleoCounter system is explained on the next few pages.

The NucleoCounter system identifies and counts individual somatic cells containing stained DNA. The sample pre-treatment is intended to allow the effective staining of cellular DNA but it will also aid the dissolving of cell aggregates and reduce scatter from fat globules and protein micelles present in the milk. Depending on the milk sample and sample properties some additional effort might be needed to obtain reliable results (please refer to appropriate Application Notes provided by ChemoMetec).

2.1 The NucleoCounter SCC-100 instrument

The NucleoCounter is shown in the figure below.

Figure 2. NucleoCounter instrument

Refer to chapter 5 with respect to the operation of the instrument.

2.1.1 Fluorescence microscope

The compact fluorescence microscope integrated in the NucleoCounter comprises LED´s (light emitting diodes) as excitation light source, excitation and emission filters, optics (lenses) and a CCD (charged coupled device) camera. Furthermore, the NucleoCounter contains advanced software for image processing. The fluorescence microscope, with a cassette inserted, is shown in Figure 3.

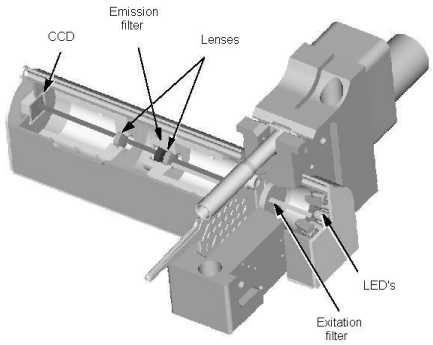

Figure 3. *The NucleoCounter´s compact fluorescence microscope*

Before the NucleoCounter fluorescence microscope is activated an SCC-Cassette is loaded with sample and inserted into the insertion slit of the instrument. The lid is closed in order to exclude external light from interfering with the analysis. The measurement is activated, by pressing the "**Run**" button.

When "**Run**" is activated, the actuator moves the piston rod down through the cylinder of the cassette. Hereby, the stained lyzate mixture is transported through the flow system of the cassette. The form and dimensions of the flow channels facilitate effective mixing of lyzate mixture and stain. Sensors monitor the liquid flow, and when the stained lyzate mixture has reached the measurement chamber of the cassette, the actuator stops the piston movement.

The measurement chamber is illuminated with green excitation light from the light source. The green light is passed through an excitation filter before it reaches the measurement chamber. The excitation filter allows only green light of the appropriate wavelengths for the excitation of PI to pass.

The green light will excite the PI bound to DNA and in return PI emits red fluorescence light. Some of the green light will pass through the measurement chamber together with the red fluorescence light. This green light is removed by an emission filter, which only allows the red light to pass through. Using an optical lens system the red light is finally focused on the CCD chip of the camera.

A fluorescent image of the content of the measurement chamber is thus recorded. Example of such an image is shown in Figure 4. Each spot in the image represents a cell containing DNA stained with PI.

***Figure 4**. Fluorescent image (from SomaticView PC software) of cell DNA contained in the measurement chamber of an SCC-Cassette*

2.1.2 Built-in image analysis

The NucleoCounter is equipped with advanced software for image analysis. This internal software analyzes the recorded image and counts the number of nuclei in the image. As the volume of the cassette measurement chamber and the dilution of the lyzate is known, the cell density in the initial sample can be calculated. The concentration of cells in the initial sample is presented in the NucleoCounter display. If the external printer is connected to the instrument the result is printed, and if the optional software (SomaticView) is used, the results and the recorded fluorescent image can be viewed.

The entire process takes approximately 30 seconds, from pressing "**Run**" to the presentation of the result in the display of the NucleoCounter.

Somatic cell counting with the NucleoCounter are objective and the results are independent of the operator.

2.2 The SCC-Cassette

The SCC-Cassette is a custom made disposable plastic device designed for optimal sample handling and safe disposal. The cassette is shown in figure 5. The main features of the SCC-Cassette are the piston, the flow system containing the fluorescent dye, propidium iodide, and the measurement chamber.

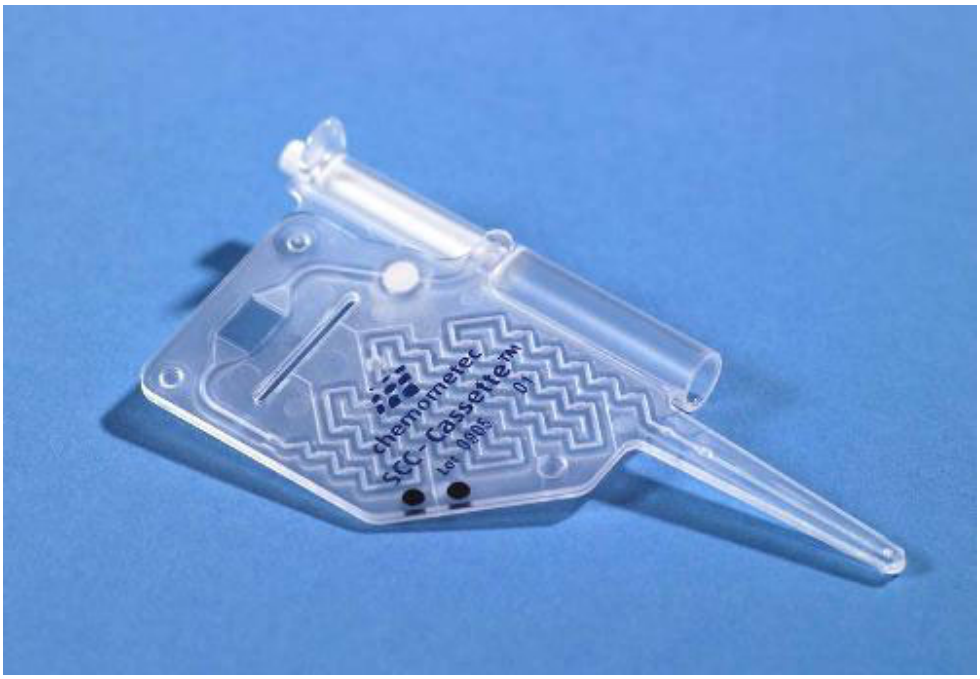

Figure 5 The SCC-Cassette. The fluorescent dye, propidium iodide, is immobilized in the first part of the flow system.

2.2.1 Loading the cassette

The SCC-Cassette is loaded by gently pressing the white piston, which creates a partial vacuum in the flow system. The tip of the SCC-Cassette must be immersed into a lyzate mixture when pressing the piston, resulting in lyzate being loaded into the flow system. Approximately 50µl is loaded into the flow system.

2.2.2 Fluorescent dye

The fluorescent dye, propidium iodide, is immobilized in the first part of the flow system. As the lyzate is loaded into the SCC-Cassette, the immobilized propidium iodide is dissolved immediately and mixed with the lyzate. Propidium iodide intercalates with double stranded DNA and forms a fluorescent substance, absorbing green light and emitting red light, which is utilized for detection of stained cells. Furthermore PI's ability to fluoresce is enhanced significantly upon binding to DNA thereby substantially enhancing selectivity.

During the analysis the stained mixture is transported through the flow system, where it is mixed with the propidium iodide, towards the chamber where the actual cell counting is performed. The precise volume analyzed, is determined individually for each cassette during analysis. This volume of milk analysed is approximately 1 µl. After analysis the SCC-Cassette is disposed of as biological waste.

2.2.3 Sample volume

During production each cassette is marked with a dot code, which specifies the precise depth or thickness of the measurement chamber of the cassette. The dot code is read and decoded in the instrument during analysis and the volume analyzed is determined by multiplying the imaged area with the sample depth of the cassette. The imaged area is only dependent on the optics of the instrument. Therefore, the area is constant and specific for each instrument.

2.2.4 Cassette handling

The built-in image analysis method of the NucleoCounter offers considerable stability, when eliminating non-cellular objects from the image, including scratches and smears on the cassette windows, and thus producing valid results even under extreme conditions. On the other hand, the quality of the cell count is best assured by keeping the windows of the cassette as clean as possible.

Caution! In order to avoid contaminating the measurement window it is important not to touch the window when handling the cassettes. Be careful when attempting to wipe off the surface of the cassette, in an attempt to remove any foreign object, since the plastic material of the cassette can be scratched.

2.3 Lysis buffer

The lysis buffer for the lysing of somatic cells, Reagent C, is suitable for the sample preparation of milk samples. It is highly effective and generally achieves virtually instantaneous lysing of somatic cells in a milk sample. Nevertheless certain milk samples, or preservation of milk samples, might require different preparation. Thus if you encounter problems relating to insufficient lysing of somatic cells, please contact ChemoMetec A/S for assistance.

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3 Control Buttons, Keypad and Display

3.1 Interactive Controls

3.1.1 Control Buttons

There are four Control Buttons on the front of the instrument (see Figure *6*):

Table 3. *Control Buttons on the NucleoCounter*

On/Off	Use this button to turn the instrument on and off
Run	Use this button to start measuring
Esc	Use this button only as instructed in this manual
Del	Use this button only as instructed in this manual

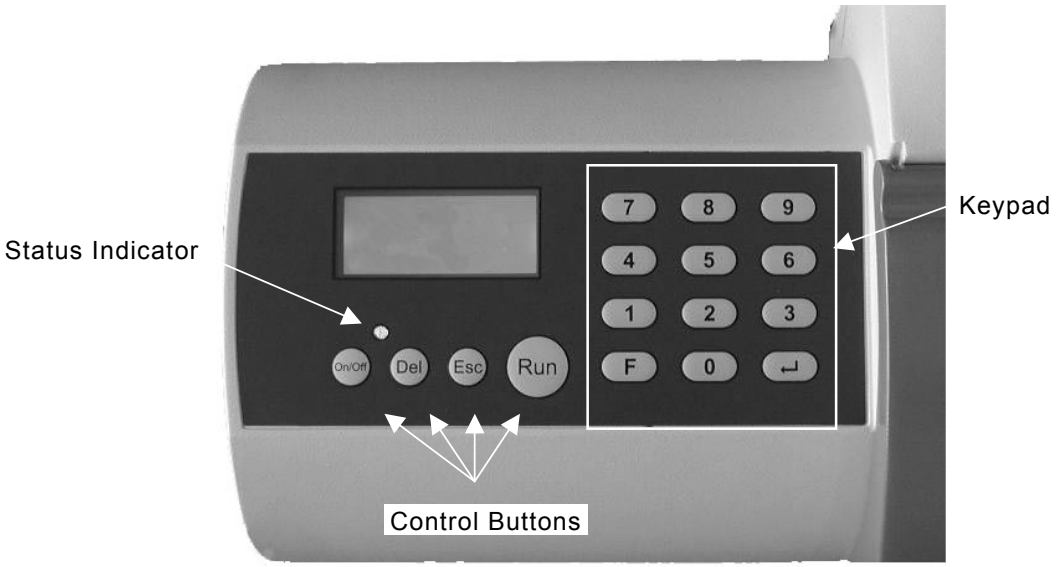

Figure 6. *Control Buttons, Keypad and Status Indicator of NucleoCounter instrument*

3.1.2 Keypad

The Keypad is comprised of 12 keys (see Figure 6): "**0-9**", "**F**" (function key) and "↵" (Enter). The keypad is used for any entering of values used to alter the status of the instrument.

3.2 Interface Display

3.2.1 Status indicator

A small Status Indicator light above the "**On/Off**" button (see Figure 6) illuminates when the unit is turned on. It is green when the instrument is ready to measure and it turns red while the instrument is measuring or displaying an error message. The Status Indicator turns green after successful measurement when the results are displayed.

3.2.2 Display screen

The display screen communicates information to the user. It indicates, at various times: unit identification, software version, start-up status, operating functions, cell counts and shutdown status.

4 Installation and Start-up

4.1 Power on, power off

The NucleoCounter is powered by a 12VDC external power supply. To connect the power supply to the NucleoCounter, connect it to the DC socket (see Figure 7), and plug the mains power cord of the power supply into a wall outlet.

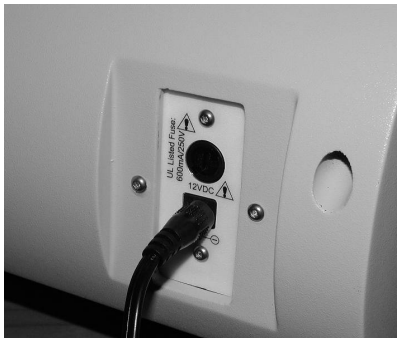

Figure 7. Connecting the 12VDC power cord plug to the NucleoCounter

The NucleoCounter can now be turned on and off by pressing the "**On/Off**" button on the front panel.

4.1.1 Starting up

Caution! During start-up the NucleoCounter performs a self-check. Never insert or remove any cassette during the start-up.

During start-up a brief noise is heard as the actuator motor is activated for test purposes. This is a part of a normal start-up procedure. While the NucleoCounter is starting up the display shows for a few seconds instrument details as follows:

```
NucleoCounter
SCC-100
V4.xx 2005-MM-DD
S/N: 002-01
```

Figure 8. The start-up display

The start-up display shows the version number and date (year-month-date) of the internal software of the NucleoCounter in line 3 ("v4.XX" in Figure 8). The serial number of the instrument is shown in line 4 in the display ("002-01" in Figure 8).

After a successful start-up the display changes (Figure 9) and the status indicator on the keyboard panel turns green.

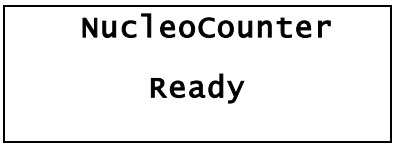

Figure 9. *The NucleoCounter is ready for cell counting*

If the instrument has performed as described above, it is ready for use. If the instrument displays an error message at start-up please refer to chapter 7.

4.1.2 Shutting down

Pressing the "**On/Off**" button shuts down the NucleoCounter and while the instrument shuts down, the display will momentarily look as shown in Figure 10.

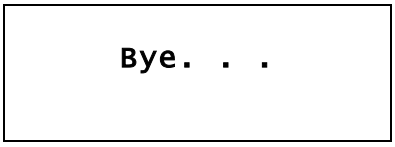

Figure 10. *The shutdown display.*

4.2 Installation of SomaticView

Regarding installation of the optional SomaticView PC-software, please refer to the SomaticView User's Guide.

5 Operation of the NucleoCounter SCC-100

5.1 Ready mode

After the NucleoCounter has started successfully the display should read:

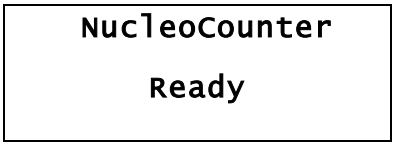

Figure 11. *The NucleoCounter is ready for cell counting.*

This display is also shown if the "**Esc**" button is activated in the result mode or any other situation, except during measuring or shutting down.

5.2 Inserting and removing the cassette

When a cassette has been properly loaded with lyzate mixture, the cassette is inserted into the NucleoCounter instrument.

5.2.1 Protection of the optical system

The sample compartment lid covers the cassette insertion area. This lid is designed to protect the area from dust and other potential contaminants, and to keep external light from interfering with the fluorescent image recording. The lid is fitted with magnetic hinges, so it can be easily removed for cleaning purposes.

Unless inserting/removing a cassette or cleaning the inserting area or the lid, the lid should be kept closed at all times as means of protecting the optical system of the NucleoCounter.

5.2.2 Inserting cassette

To insert the cassette:

1. Flip the lid up until it comes to a rest
2. Grip the cassette on either side of the piston cylinder, but taking care not to touch the measurement windows (see Figure 12).
3. Insert the cassette, bevelled edge down, into the insertion slit (see Figure 12).
4. Close the lid gently.

After analysis the lid is lifted and the cassette is removed from the insertion slit and disposed of according to national or regional laws or regulations regarding the nature of the mixture it contains.

Figure 12. *Illustration of how to grip and insert the cassette into the insertion slit*

5.3 Measuring - The Run button

When a cassette has been loaded and inserted into the instrument, the measurement is activated, by pressing the **Run** button.

5.3.1 Actuator movements

When **Run** is pressed, the actuator moves the piston rod down through the cylinder of the cassette. Hereby, the sample/dye mixture is transported to the cassette measurement chamber. The form and dimensions of the flow channels facilitate effective mixing of sample and stain. Sensors monitor sample flow. When the sample has been correctly loaded into the measurement chamber, the piston is stopped.

5.3.2 Result presentation

The analysis will take place after a few seconds and the fluorescent image is recorded. Once recorded, the image is analysed by the instrument's internal software. Upon completion of the analysis, the result is shown on the display. The entire process takes approximately 30 seconds.

5.3.3 External printer

If an external printer is connected, the results and sample identification number is printed. Please refer to separate documentation for the external printer for further instructions concerning the handling of the printer.

5.3.4 External computer

If an external computer with the SomaticView software installed on it is connected, the results and the recorded fluorescent image can be viewed using the SomaticView software.

After the measurement is completed the cassette can be safely removed (see section 5.2). Sometimes, however, the complete process described above may be interrupted. Please familiarize yourself with possible error handling of the NucleoCounter presented in chapter *7*.

5.4 Result display

Following a successful analysis, the cell density will be displayed on the display screen. Figure 13 shows an example of results as given on the display of the NucleoCounter instrument.

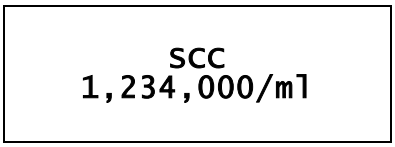

Figure 13. *Somatic Cell Count of a milk sample, presented on the display of the NucleoCounter in cells per ml.*

5.4.1 Result presentation

The NucleoCounter presents Somatic Cell Count (SCC) rounded towards the nearest thousand per ml. Results at 10,000 or less are presented as <10,000/ml and results above 2,000,000/ml are presented as >2,000,000/ml.

The number of digits presented generally exceeds the number of significant digits, considering the repeatability of the instrument. The repeatability of the instrument is largely dominated by the characteristics of counting random events, as described by the Poisson distribution. According to the Poisson distribution the standard deviation of a measurement based on the counting of **n** random events is equal to the square root of the number of events counted, or $s_{Poisson} = \sqrt{n}$.

5.4.2 Precision

Results on the NucleoCounter follow the Poisson distribution closely and since about 1/1000th of a ml of milk is analyzed in each measurement then the number of events counted is approximately equal to the number of thousand cells per ml, e.g. if the result is 500,000 cells/ml then about 500 cells have been counted and thus resulting in corresponding Poisson standard deviation $s_{Poisson} = \sqrt{500} \approx 22$ or equivalent to about 4.5%. The following table gives a list of SCC and the corresponding $s_{Poisson}$.

Table 4 *List of SCC and the corresponding* $s_{Poisson}$

SCC	$S_{Poisson}$ (SCC) '000	$S_{Poisson}$ (%)
50,000	7	14.
100,000	10	10.
200,000	14	7.1
400,000	20	5.0
600,000	25	4.1
800,000	28	3.5
1,000,000	32	3.2
1,500,000	39	2.6
2,000,000	45	2.2

The table above gives an indication of the number of significant digits in the reported results, when expressed as one standard deviation of repeatability. Please note that if the result is based on the average of 2 or more measurements then the expected standard deviation of the mean result is the corresponding standard deviation at that level divided by the square root of measurements. As an example, if the average of 4 measurements of the same sample results in SCC of 400,000 cells/ml then the standard deviation of the mean is $\frac{20{,}000}{\sqrt{4}}$ equal to 10,000 or 2.5%. Referring to the Poisson distribution this corresponds to the counting of $4 \cdot 400 = 1{,}600$ events and this illustrates that the precision of any SCC result is dependent on the total number of somatic cells counted.

The Poisson distribution can therefore be used to determine the number of measurements needed in order to obtain a result with a given precision, expressed as one standard deviation, when the approximate cell count is known. According to the Poisson distribution the number of counted cells, **n**, and the accuracy expressed as % follow the equation: $\text{Accuracy}\% = 100 \cdot \sqrt{\frac{1}{n}}$ and thus $n = \left[\frac{\text{Accuracy}\%}{100}\right]^{-2}$. If for instance a result with the precision, e.g. standard deviation, of 2% is sought it is necessary to count at least 2,500 cells, corresponding to at least; 25 measurements at SCC 100,000, 7 measurements at SCC 400,000, 3 measurements at SCC 1,000,000 and 2 measurements at SCC 1,500,000.

5.5 Instrument settings

The user can change several settings of the instrument, such as the date and time of the built in clock and contrast of the instrument display.

5.5.1 Setting Date (F200) and Time (F201)

The functions, F200 ("**F + 2 + 0 + 0 + ↵**") and F201 ("**F + 2 + 0 + 1 + ↵**"), are used to set the time and the date, respectively. The date and time are used when a printer or a PC is connected to the printer port. Please refer to Technical Note 001 (Part No. 994-0014) with respect to setting and using the Time and Date features.

5.5.2 Reset Counter (F30)

The function, F30 ("**F + 3 + 0 + ↵**"), is used to reset the Counter. The Counter counts the number of analysis performed by the instrument. This feature is used when a printer is connected to the instrument. Please refer to Technical Note 001 (Part No. 994-0014) with respect using this feature.

5.5.3 Display contrast (F220)

When typing "**F + 2 + 2 + 0 + ↵**" it is possible to adjust the contrast of the LCD display. Use the "**1**" or "**2**" keys in order to increase or decrease the contrast of the LCD-display. The default value is 4. Values in the range from 0-9 can be chosen. The display will be updated with the current value, which is shown in the upper right hand corner of the display.

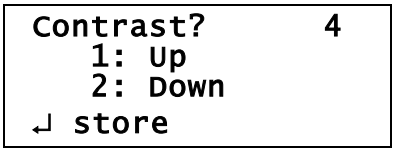

Figure 14. *A new LCD-contrast value can now be chosen*

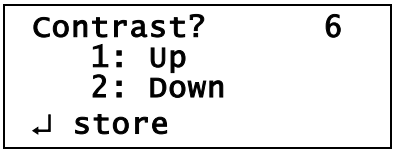

Figure 15. *LCD-contrast value 6 is going to be chosen*

Press "↵" to store the chosen value (or "**Esc"** to retain to the existing value).

If the value has been changed the new contrast will be remembered during the session. When shutting down the NucleoCounter asks if the new value shall be saved as the new constrast value. Press "↵" to save or "**Esc**" if the present default value should not be overwritten.

5.5.4 Instrument Info (F100)

When typing "**F + 1 + 0 + 0 + ↵**" the Instrument Info will appear in the display as in the Display Text Type shown below.

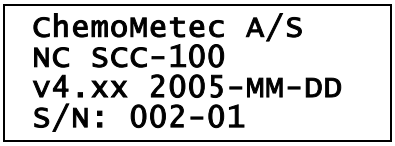

Figure 16. *Instrument Info*

The display shows the instrument type in line 2 of the display. The version number and date (year-month-date) of the internal software of the instrument is shown in line 3. The serial number of the instrument is shown in line 4 of the display. The display text is almost identical to the start-up display text (*Figure 8*).

5.5.5 Saving parameters

The settings changed through the user function are in effect immediately. Some of the settings, e.g. contrast are not automatically saved as the future settings of the instrument, but in that case the user is prompted for confirmation upon shutting down the instrument. Status such as date, time and counter are saved automatically. Thus when the NucleoCounter is turned off, after changing status not saved automatically, the display will read "Save parameters?", "ENTER: Save" and "ESC: Cancel".

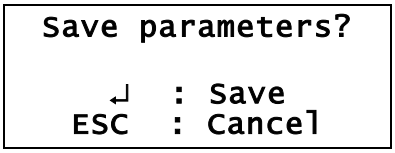

Figure 17 *The shut-down display when any parameters has been changed.*

By pressing the Enter key <↵> the status will be saved and will be in effect next time the NucleoCounter is switched on. Pressing Escape <Esc> will not save the status and the instrument will use the previous settings next time it is switched on.

5.6 Zero Count Check (F50)

The instrument can perform a so called **Zero Count Check** (only firmware v 3.04 or higher). This check is carried out **without** cassette in the insertion slit of the instrument

and with the lid closed. The check determines the number of CCD-pixels that show elevated signal levels. If the number of pixels is above a predefined limit then the cassette insertion slit can be contaminated with an interfering particle, like a dust particle. An error message is shown in the display and a cleaning of the insertion slit is recommended (refer to chapter 6 Maintenance of NucleoCounter).

If a PC with SomaticView is connected to the instrument a contaminant is usually observed as an object, which is stationary in all images.

To initiate a **Zero Count Check** type in "**F50 + ↵**". Then the following text will appear in the display:

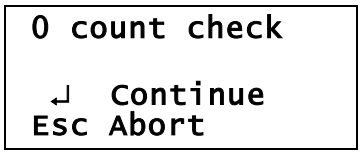

Figure 18 *Zero Count Check, step 1*

Press "↵" to continue. Now the instrument prompts you to remove any cassette from the insertion slit:

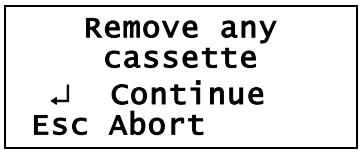

Figure 19 *Zero Count Check, step 2*

Press "↵" to continue. Now the instrument prompts you to close the lid in order to avoid false light from entering the insertion slit during the Zero Count Check:

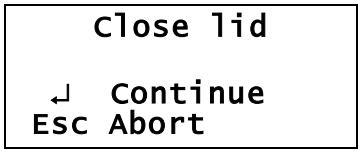

Figure 20 *Zero Count Check, step 3*

Press "↵" to continue. Then a "Wait" message appears in the display:

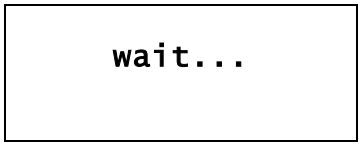

Figure 21 *Zero Count Check, step 3A*

After a few seconds the instrument has performed the Zero Count Check. If no contamination of the insertion slit can be detected an "OK" message appears in the display (see the figure below). Press any key to return to "Ready mode".

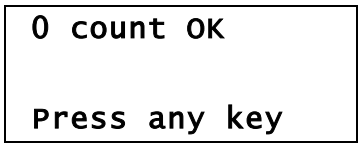

Figure 22 *The result of the Zero Count Check is OK*

If a contamination of the insertion slit is detected an error message is shown:

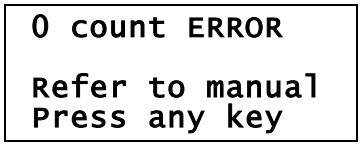

Figure 23 *The Zero Count Check did not pass the test*

If the Zero Count Check returns an error, it is recommended to clean the insertion slit, e.g. with compressed, dry air (refer to chapter 6 Maintenance of NucleoCounter and Technical Note No. 004 "*How to clean the NucleoCounter*"). Perform the Zero Count Check again. If the error appears even after several attempts to clean the insertion slit with compressed air and if necessary the NucleoCounter® Clean Kit, contact ChemoMetec A/S or the local distributor.

6 Maintenance of NucleoCounter SCC-100

A regular cleaning of the NucleoCounter is recommended in order to protect its surface and assure the quality of the collected images.

6.1 Cleaning

Depending on the environment in which the NucleoCounter is operated it is recommended that regular cleaning of the cabinet be carried out. When cleaning the cabinet it is recommended to use a soft moist cloth and gently wipe the surface. Any contamination, which does not come off immediately, should be rubbed gently with a cloth wetted with mild detergent. Never use organic solvents or aggressive detergents to clean the exterior of the NucleoCounter as this might damage the surface.

6.1.1 Cassette insertion area

The cassette insertion area and the optical parts inside the NucleoCounter should be properly protected against dust and other contaminants. Therefore, great care must be taken to ensure that the lid covering the cassette insertion area is closed when cassettes are not being loaded into or removed from the NucleoCounter. If the insertion area becomes contaminated it should immediately be cleaned with a clean, dry and dust-free cloth.

When cleaning the cassette insertion area, great care must be taken against introducing any liquid or dust into the insertion slit of the NucleoCounter. Any liquid that enters the interior of the NucleoCounter can damage the optical parts and thus compromise the quality of the cell counts.

6.1.2 Optical elements

An object on the surface of an optical component can influence the collected image. A contaminant will normally be visible as a faint object in the image. Since it is also possible that such contamination is on the surface of the cassette, only objects, which are stationary in all images, are possible contaminations of the optical system. An example of a relatively large contamination is given in Figure 24.

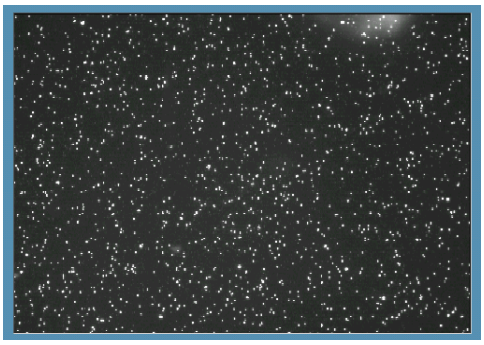

Figure 24. *An image showing a contamination of the optical system, visible as a white cloudy phenomena in the upper right hand corner. If the contamination is stationary it should be removed using compressed air.*

6.1.3 Removal of dust particles

The presence of a contaminant (e.g. dust particles) will normally not influence the counting of cells. The NucleoCounter will distinguish between cells and contaminants, since cells are generally significantly smaller than contaminants.

Use the F50 function (refer to section 5.6 Zero Count Check (F50)) regularly in order to check for contamination of the insertion slit.

Dust and other contaminants deep inside the insertion slit should be removed using dry, compressed air (see Figure 25) and if necessary using the NucleoCounter® Clean Kit (refer to Technical Note No. 004 "How to clean the NucleoCounter"). Use the F50 function to verify the rinsing effect. If the error appears even after several attempts to clean the insertion slit with compressed air, contact ChemoMetec A/S or the local distributor.

Figure 25. *Removal of dust from the insertion slit using compressed air.* ***Never use the container in a horizontal position and preferable do not use it at an angle greater than shown in the figure.***

6.1.4 Spill of liquid

If liquid has been spilled on the instrument it can contaminate elements of the optical system. This contamination can show up in the image in several ways and have many causes but a common feature is that it cannot be removed by the use of compressed air.

Even though such phenomena are clearly visible on the image it only rarely affects the results of the NucleoCounter. Since it is possible to damage the optical system while attempting to clean the system it is recommended that ChemoMetec A/S should be consulted before the user attempts such cleaning.

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7 Troubleshooting - Error messages

Under certain conditions the NucleoCounter will display error messages during operation. Corrective actions are suggested below but if they do not correct the errors, contact ChemoMetec A/S or the local distributor.

7.1 No valid cassette

When trying to analyze a cassette, which is not valid, the NucleoCounter displays the error message shown in Figure 26.

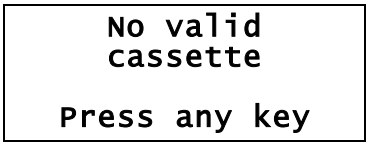

Figure 26. The error message displayed when the NucleoCounter does not recognize the cassette as valid

This error message is displayed in the following situations:

- The cassette has been analyzed previously
- The cassette is not inserted properly into the NucleoCounter
- The cassette has been damaged
- There is no cassette inserted into the NucleoCounter

7.2 Analysis aborted

The NucleoCounter displays the error message shown in Figure 27 when the analysis has been aborted because the stained mixture inside the cassette has not reached the chamber within a given time.

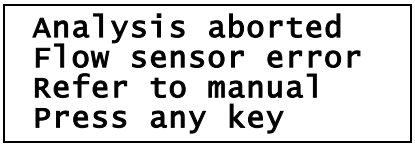

Figure 27. Error message displayed by the NucleoCounter when the analysis has been aborted

A common cause of this is that an insufficient volume of lyzate mixture has been loaded into the cassette. Load a new cassette and repeat the analysis.

The error will also occur if the cassette has not been inserted properly into the NucleoCounter. Then the instrument cannot press the piston down and the error occurs. Take out the cassette, insert it properly and run the analysis.

7.3 Actuator error messages

The actuator moves the piston down into the barrel of the cassette. The error message is shown in Figure 28.

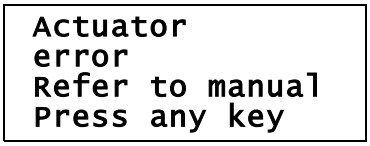

Figure 28. The NucleoCounter can display this message regarding the actuator

First, examine if the cassette has been inserted properly. If not, insert the cassette once more and attempt the analysis again. If the cassette was inserted properly turn the NucleoCounter off and on a few times (possibly it is necessary to unplug the power cord to turn the instrument off). If the actuator moves during start-up it is likely that the error has been corrected. If the error is not corrected by this action, please contact ChemoMetec for further assistance.

7.4 Sample could not be analyzed

When the NucleoCounter cannot determine the concentration of cells during analysis the error message in Figure 29 is displayed.

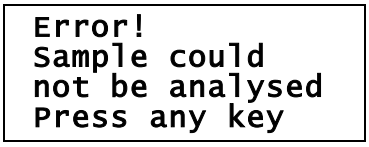

Figure 29. This error message is displayed when the concentration of cells in the cassette cannot be determined

The error appears if the concentration of stained nuclei inside the cassette chamber is far too high or contains to many foreign objects to allow reliable results to be obtained. The message can also appear if the lid is not closed, which may cause ambient light to interfere with the analysis.

7.5 Sensor error

The black dots, which are printed on the cassettes, are read by sensors inside the NucleoCounter each time an analysis is run. The dots are a code for the volume of lyzate

mixture in the cassette chamber. If one or more of the sensors has a faulty operation an error message will be displayed, see Figure 30.

```
Sensor error

Refer to manual
Press any key
```

Figure 30. *This error message is displayed if one of the sensors, which read the black dots on the cassettes, causes error.*

If the error message is displayed, analyses can still be made but the accuracy of the results cannot be guaranteed since the volume of the measurement chamber may not be read correctly.

A foreign object in the cassette insertion region of the instrument can cause this error. If no such object is present then contact ChemoMetec for further assistance.

7.6 Power-on failure

If the NucleoCounter can not be turned on, please verify that the power supply is connected to the NucleoCounter and a working power plug.

If the NucleoCounter still does not turn on, inspect and/or replace the fuses as described below.

The fuse holder is located just above the NucleoCounter´s power plug see Figure 31.

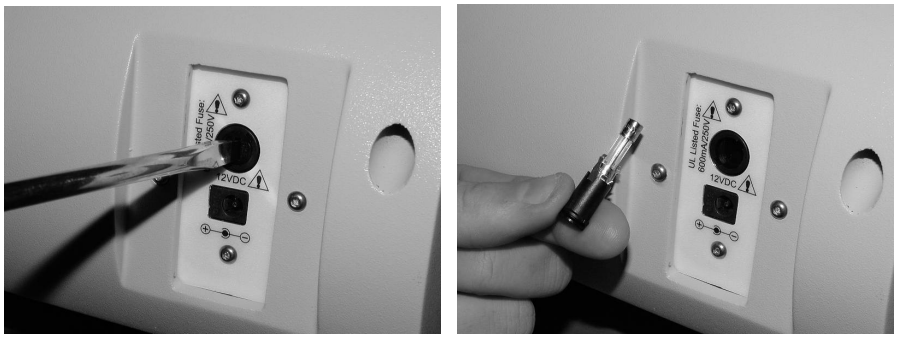

Figure 31. *Location and removal of the fuse holder*

Disconnect the power supply from the NucleoCounter. Then remove the fuse holder by use of a screwdriver (turn CCW) as indicated in Figure 31. Inspect the fuse. If it needs replacement use an UL Listed fuse: 600mA/250Vac (UL 248).

If the NucleoCounter does not turn on after replacement of the fuse, or if the fuse was not broken, please contact ChemoMetec A/S or the local distributor for further instructions.

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8 Technical specifications

8.1 Technical specifications for NucleoCounter SCC-100

Specificity	Somatic cells stained with the DNA specific fluorescent dye, PI.
Sample types	Milk samples containing dispersed somatic cells.
Sample consumption	The sample is mixed with a lysis buffer prior to analysis. It is recommended that at least 500 µl of sample are used for this dilution in order to reduce error caused by sample handling. Approximately 50 µl of the lyzate mixture is loaded into the cassette
Analysis volume	Approximately 2 µl of the lyzate mixture is being analyzed in the NucleoCounter SCC-100, corresponding to approximately 1 µl of milk.
Measurement range	*Somatic Cell Count in a volume of milk sample* Total range: 10,000 to 2,000,000 cells/ml Recommended range: 100,000 to 750,000cells/ml
Presentation of Result	The NucleoCounter SCC-100 presents the estimated SCC in the milk sample when milk and Reagent C are mixed in equal amounts.
Operation	Menu-controlled by means of keyboard and LCD display.
Analysis time	When pressing "**Run**" on the NucleoCounter SCC-100 the result will be displayed within 30 seconds.
Physical data	Weight 3 kg Height 26 cm Width 38 cm Depth 22 cm
Power	⚠ See Section 0 Power Supply Input 12VDC (11-13VDC) Fuse UL Listed fuse: 600mA/250Vac (UL 248)
Power consumption NucleoCounter	Peak 25 W Ready mode 2.5 W Standby 2 mW
Operation conditions	Maximum relative humidity 80 percent for temperatures up to 31°C decreasing linearly to 65 percent relative humidity at maximum 35°C; minimum temperature 15°C.
USB	USB, version 1.1. Note: Does not support USB Hubs.
Printer	Thermal printer with RS-232 interface and cable optionally supplied by ChemoMetec A/S.

Other environmental operating conditions for the NucleoCounter

Indoor use only.

Altitude	Up to 2000 m.
Mains supply	Refer to the specifications for the Power supply in section 9.2 Power supply.

INSTALLATION CATEGORY	II (Refer to UL 61010A-1)
OVERVOLTAGE CATEGORY	II (Refer to UL 61010A-1)
POLLUTION DEGREE	II (Refer to UL 61010A-1)

8.2 The SCC-Cassette™

Reagent	Each SCC-Cassette contains approximately 2,8 µg propidium iodide.
Storage	Store the SCC-Cassettes in a sealed foil bag at max. 30°C.
Stability	See documentation delivered with the SCC-Cassettes.

8.3 EMC/EMI standards

The NucleoCounter SCC-100 complies with EMC/EMI standards as follows.

EN61326: 1997+A1: 1998 (Class B) +A2: 2000, Electrical equipment for measurement, control and laboratory use – EMC requirements (emission and immunity). Annex B and C from A1: 1998 is used.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

9 Equipment and Accessories

9.1 Equipment and Accessories List

The accessories for the NucleoCounter are listed in the table below.

⚠ Ensure that items marked with this symbol are the only equipments and accessories used together with the NucleoCounter.

Table 5. Equipment and Accessories for the NucleoCounter SCC-100 System

Item	Part no.	Description
NucleoCounter SCC-100	900-0200	Instrument
SCC-Cassette, 100 pcs.	941-0008[4]	A disposable device used for performing the cell-count.
Reagent C, 500 ml	910-0200[5]	A reagent used for lysis of cells prior to measurement
CD with SomaticView v. 1.0	950-0200	PC software used for storing of data and presentation of cell counts and images
User's Guide SCC-100	991-0200	User's guide for the NucleoCounter SCC-100 (English version)
User's Guide SomaticView	991-0201	User's guide for the SomaticView software (english version)
USB Cable, 2 Meters	931-0001	A USB cable used for transmission of image data from the NucleoCounter to an external PC
Power supply	See section below	A device for generating the DC-voltage for the NucleoCounter from the mains supply
Fuse 5x20mm 600mA 10 pcs.	939-0001	A device for protecting the NucleoCounter against over current
Mains Power cord	See section below	A cord for mains supply of the external power supply

[4] In a box with 10 bags each containing 10 cassettes, minimum purchase 5 boxes

[5] In a container with 0.5 Liters (sufficient for up to 1,000 analysis)

Item	Part no.	Description
Dry, compressed air	See section below	Used for removal of dust from the optical system of the NucleoCounter
Finnpipette 100-1000 µL	911-0009	Pipette for milk sample and Reagent C
Finntip 1000, 96 pcs.	911-0012	Disposable tips for pipette 911-0009
Eppendorf 1.5ml, 500 pcs	911-0015	Disposable sample vials
Bottle Stand	929-0001	Holder for Reagent C bottle
Thermo Printer PCNEOS-S2BN	939-0006	Thermal printer, using thermo paper, for the NucleoCounter
Paper Thermo Printer, 5 RL	939-0007	Paper for Thermal Printer
Shortform SomaticView	991-0202	Short instructions (DK, UK, DE, FR, IT, SF)
Applic. Note 200-GB	994-0200	Determination of SCC in milk

9.2 Power supply

⚠ The NucleoCounter shall only be used with one of the following external power supplies:

- Power supply Class I, Proton Electronic Industrial Co. Ltd., model SPN-260-12, input rated 100-240 Vac, 50-60Hz, 1.6 A. Output rated 12 Vdc, 4.3 A.
- Power supply Class I, Powerbox Europe AB, model EBH 03 131, input rated 100-240 Vac, 47-63 Hz, 0.8A. Output rated 11-13 Vdc, 2.7 A.
- Power supply Class II, Celetron USA Inc., model ZVC40LT12E, input rated 100-240 Vac, 50-60Hz, 1.2 A. Output rated 12 Vdc, 3.3 A.

⚠ The detachable power supply cord set and appliance inlet of the external power supply are considered as the disconnecting device.

Contact ChemoMetec A/S for information on order of a specific power supply listed above.

9.3 Mains Power cord

Detachable power supply cord set for the Class I specified power supplies:

For US 125 Vac

UL listed, type SVT, rated min. 60C, 18 AWG, 3 conductors. Provided with molded-on grounding-type (NEMA 5-15P) attachment plug, rated min. 125 Vac, min. 2.5A. Opposite end terminates in molded on, IEC320 style connector, rated min. 125 Vac, min. 2.5 A.

For Europe 250Vac

Cord type min. H05RR-F or min. H03VV-F or min. H03VVH2-F, rated min. 60C, 3x0.75 mm2. Provided with molded-on grounding-type attachment Plug, rated min. 250 Vac, min. 2.5 A. Opposite end terminates in molded on, IEC320 style connector, rated min. 250 Vac, min. 2.5 A.

Detachable power supply cord set for the specified Class II power supply:

For US 125 Vac

UL listed, type SPT-2 or SVT, rated min. 60C, 18 AWG, 2 conductors. Provided with molded-on un-grounding-type (NEMA 1-15P) attachment Plug, rated min. 125 Vac, min. 2.5 A. Opposite end terminates in molded on, IEC320 style connector, rated min. 125 Vac, min. 2.5 A.

For Europe 250Vac

Cord type min. H05RR-F or min. H03VV-F or min. H03VVH2-F, rated min. 60C, 2x0.75mm2. Provided with molded-on un-grounding-type attachment Plug, rated min. 250 Vac, min. 2.5 A. Opposite end terminates in molded on, IEC320 style connector, rated min. 250 Vac, min. 2.5 A.

⚠ The Mains supply cord and plug of the external power supply shall comply with any national regulations.

⚠The user shall be made aware of that, if the NucleoCounter and the external power supply is used in a manner not specified by the manufacturer, the protection provided by the NucleoCounter and the external power supply may be impaired.

Contact ChemoMetec A/S for information on order of a specific Power supply cord listed above.

9.4 Dry compressed air

Dry, compressed air (KENAIR Air Duster - CFC Free) is used for removal of dust from the optical system of the NucleoCounter (refer to chapter 6).

The item can be obtained from Kenro Ltd, Greenbridge Road, Swindon SN3 3LH, UK. Tel: +44 (0) 1793 615836, E-mail: sales@kenro.co.uk. Alternatively the item, or a similar item, might be available through local dealers.

9.5 External Printer

An external impact or thermo printer may optionally be connected to the NucleoCounter for the printing of test results.

For connection of a printer (Impact type CM no. 939-0003; thermo type CM type no. 939-0006) please refer to Technical Note 001 (Impact type CM no. 994-0013; thermo type CM no. 994-0014).

The NucleoCounter is equipped with a printer output port. It is located just below the USB connector on the rear side as apparent from Figure 32 and Figure 33

Figure 32 Location of the Printer output on the NucleoCounter

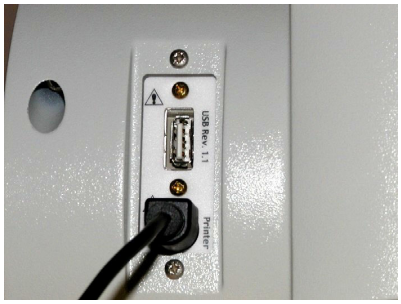

Figure 33 Connecting the Printer cable to the NucleoCounter (lower connector).

Table 6 Description of the NucleoCounter Printer Output connector

Pin no	Name	Maximum Voltage level[6]
1[7]		
2	Rx	±10 VDC
3	Tx	±10 VDC
Metal Enclosure	DGND	0 VDC

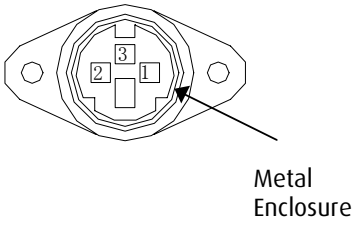

Figure 34 Printer Output connector seen from the cable entry side.

[6] In normal operation. Refers to DGND Metal Enclosure. Taken from the datasheet for MAX202ECSE.

[7] There is no signal connected to pin 1.

10 Appendix 1: WEEE directive information in more EU languages

United Kingdom

Correct Disposal of This Product
(Waste Electrical & Electronic Equipment) - Europe only

This marking shown on the product or its literature, indicates that it should not be disposed together with other household wastes at the end of its working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate this from other types of wastes and recycle it responsibly to promote the sustainable reuse of material resources.

Business users should contact their supplier and check the terms and conditions of the purchase contract. This product should not be mixed with other commercial wastes for disposal.

Sweden

Korrekt avfallshantering av produkten
(elektriska och elektroniska produkter) - Endast för Europa

Denna markering på produkten och i manualen anger att den inte bör sorteras tillsammans med annat hushållsavfall när dess livstid är över. Till förebyggande av skada på miljö och hälsa bör produkten hanteras separat för ändamålsenlig återvinning av dess beståndsdelar.

Företagsanvändare bör kontakta leverantören samt verifiera angivna villkor i köpekontraktet. Produkten bör inte hanteras tillsammans med annat kommersiellt avfall.

Slovenia

Ustrezno odstranjevanje tega izdelka
(odpadna električna in elektronska oprema) - Samo Evropa

Oznaka na izdelku ali spremljevalni dokumentaciji pomeni, da ga na koncu uporabne dobe ne smemo odstranjevati skupaj z drugimi gospodinjskimi odpadki. Da bi preprečili morebitno tveganje za okolje ali zdravje človeka zaradi nenadzorovanega odstranjevanja odpadkov, izdelek ločite od drugih vrst odpadkov in ga odgovorno reciklirajte ter tako spodbudite trajnostno ponovno uporabo materialnih virov.

Podjetja naj pokličejo dobavitelja in preverijo pogoje nabavne pogodbe. Tega izdelka pri odstranjevanju ne smete mešati z drugimi gospodarskimi odpadki.

Slovakia

Správna likvidácia tohoto výrobku
(Elektrotechnický a elektronický odpad) - Platí len pre Európu

Toto označenie na výrobku alebo v sprievodnej brožúre hovorí, že po skončení jeho životnosti by nemal byť likvidovaný s ostatným odpadom. Prípadnému poškodeniu životného prostredia alebo ľudského zdravia môžete predísť tým, že budete takéto typy výrobkov oddeľovať od ostatného odpadu a vrátite ich na recykláciu.

Priemyselní používatelia by mali kontaktovať svojho dodávateľa a preveriť si podmienky kúpnej zmluvy. Tento výrobok by nemal byť likvidovaný spolu s ostatným priemyselným odpadom.

Portugal

Eliminação Correcta Deste Produto
(Resíduo de Equipamentos Eléctricos e Electrónicos) - Apenas na Europa

Esta marca, apresentada no produto ou na sua literatura indica que ele não deverá ser eliminado juntamente com os resíduos domésticos indiferenciados no final do seu período de vida útil. Para impedir danos ao ambiente e à saúde humana causados pela eliminação incontrolada de resíduos deverá separar este equipamento de outros tipos de resíduos e reciclá-lo de forma responsável, para promover uma reutilização sustentável dos recursos materiais.

Os utilizadores profissionais deverão contactar o seu fornecedor e consultar os termos e condições do contrato de compra. Este produto não deverá ser misturado com outros resíduos comerciais para eliminação.

Poland

Prawidłowe usuwanie produktu
(zużyty sprzęt elektryczny i elektroniczny) - Tylko obszar Europy

Oznaczenie umieszczone na produkcie lub w odnoszących się do niego tekstach wskazuje, że produktu po upływie okresu użytkowania nie należy usuwać z innymi odpadami pochodzącymi z gospodarstw domowych. Aby uniknąć szkodliwego wpływu na środowisko naturalne i zdrowie ludzi wskutek niekontrolowanego usuwania odpadów, prosimy o oddzielenie produktu od innego typu odpadów oraz odpowiedzialny recykling w celu promowania ponownego użycia zasobów materialnych jako stałej praktyki.

Użytkownicy w firmach powinni skontaktować się ze swoim dostawcą i sprawdzić warunki umowy zakupu. Produktu nie należy usuwać razem z innymi odpadami komercyjnymi.

Norway

Korrekt avhending av dette produkt
(Avfall elektrisk og elektronisk utstyr) - Kun Europa

Denne merkingen som vises på produktet eller dens dokumentasjon, indikerer at den ikke skal kastes sammen med annet husholdningsavfall ved slutten av sin levetid. For å hindre mulig skade på miljøet eller menneskelig helse fra ukontrollert avfallsavhending, vennligst atskill dette fra andre typer avfall og resirkuler det ansvarlig for å fremme bærekraftig gjenbruk av materielle ressurser.

Forretningsbrukere bør kontakte sin leverandør og undersøke vilkårene i kjøpekontrakten. Dette produktet skal ikke blandes med annet kommersielt avfall som skal kastes.

Netherlands

Correcte verwijdering van dit product
(elektrische & elektronische afvalapparatuur) - Alleen Europa

Dit merkteken op het product of het bijbehorende informatiemateriaal duidt erop dat het niet met ander huishoudelijk afval verwijderd moet worden aan het einde van zijn gebruiksduur. Om mogelijke schade aan het milieu of de menselijke gezondheid door ongecontroleerde afvalverwijdering te voorkomen, moet u dit product van andere soorten afval scheiden en op een verantwoorde manier recyclen, zodat het duurzame hergebruik van materiaalbronnen wordt bevorderd.

Zakelijke gebruikers moeten contact opnemen met hun leverancier en de algemene voorwaarden van de koopovereenkomsten nalezen. Dit product moet niet worden gemengd met ander bedrijfsafval voor verwijdering.

Latvia

Izstrādājuma pareiza likvidēšana
(nolietotas elektriskās un elektroniskās ierīces) - Tikai Eiropā

Uz izstrādājuma vai tam pievienotajās instrukcijās dotais marķējums norāda, ka to nedrīkst likvidēt kopā ar citiem sadzīves atkritumiem pēc tā ekspluatācijas laika. Lai novērstu videi un cilvēku veselībai iespējamo kaitējumu, kas ir saistīts ar nekontrolējamu atkritumu likvidēšanu, tas jānošķir no citiem atkritumiem un jāpārstrādā, lai sekmētu materiālo resursu atbildīgu atkārtotu lietošanu.

Rūpnieciskajiem lietotājiem jāsazinās ar piegādātāju un jāpārbauda pirkuma līguma nosacījumi. Šo izstrādājumu nedrīkst sajaukt ar citiem likvidējamiem rūpnieciskajiem atkritumiem.

Lithuania

Tinkamas produkto atliekų tvarkymas
(atitarnavusi elektros ir elektronikos įranga) - Tik Europai

Šis ženklas, pateikiamas ant produkto ar jo dokumentacijoje, nurodo, kad pasibaigus produkto tarnavimo laikui, jo negalima išmesti kartu su kitomis buitinėmis atliekomis. Kad būtų išvengta galimos nekontroliuojamo atliekų išmetimo žalos aplinkai arba žmonių sveikatai, ir siekiant skatinti aplinką tausojantį antrinių žaliavų panaudojimą, pašom atskirti jį nuo kitų rūšių atliekų ir atiduoti perdirbti.

Verslo vartotojai turėtų kreiptis į savo tiekėją ir peržiūrėti pirkimo sutarties sąlygas. Šis produktas tvarkant atliekas negali būti sumaišytas su kitomis atliekomis.

Italy

Corretto smaltimento del prodotto
(rifiuti elettrici ed elettronici) - Solo Europa

Il marchio riportato sul prodotto o sulla sua documentazione indica che il prodotto non deve essere smaltito con altri rifiuti domestici al termine del ciclo di vita. Per evitare eventuali danni all'ambiente o alla salute causati dall'inopportuno smaltimento dei rifiuti, si invita l'utente a separare questo prodotto da altri tipi di rifiuti e di riciclarlo in maniera responsabile per favorire il riutilizzo sostenibile delle risorse materiali.

Gli utenti aziendali sono invitati a contattare il proprio fornitore e verificare i termini e le condizioni del contratto di acquisto. Questo prodotto non deve essere smaltito unitamente ad altri rifiuti commerciali.

Hungary

A termék megfelel leadása
(Elektromos és elektronikus készülékek hulladékkezelése) - Kizárólag Európa

A terméken vagy a hozzá tartozó dokumentáción szerepl jelzés arra utal, hogy hasznos élettartama végén a terméket nem szabad háztartási hulladékkal együtt kidobni. Annak érdekében, hogy megel zhet legyen a szabálytalan hulladékleadás által okozott környezet- és egészségkárosodás, különítse ezt el a többi hulladéktól, és felel sségteljesen gondoskodjon a hulladék leadásáról, a hulladékanyagok fenntartható szint újrafelhasználása céljából.

Az üzleti felhasználók lépjenek kapcsolatba a forgalmazóval, és vizsgálják meg az adásvételi szerz dés feltételeit. A terméket nem szabad leadni kereskedelmi forgalomból származó egyéb hulladékkal együtt.

France

Comment éliminer ce produit
(déchets d'équipements électriques et électroniques) - Europe uniquement

Ce symbole sur le produit ou sa documentation indique qu'il ne doit pas être éliminé en fin de vie avec les autres déchets ménagers. L'élimination incontrôlée des déchets pouvant porter préjudice à l'environnement ou à la santé humaine, veuillez le séparer des autres types de déchets et le recycler de façon responsable. Vous favoriserez ainsi la réutilisation durable des ressources matérielles.

Les entreprises sont invitées à contacter leurs fournisseurs et à consulter les conditions de leur contrat de vente. Ce produit ne doit pas être éliminé avec les autres déchets commerciaux.

Finland

Tämän tuotteen turvallinen hävittäminen
(elektroniikka ja sähkölaitteet) - Vain Eurooppa

Oheinen merkintä tuotteessa tai tuotteen oheismateriaalissa merkitsee, että tätä tuotetta ei tule hävittää kotitalousjätteen mukana sen elinkaaren päätyttyä. Hallitsemattomasta jätteenkäsittelystä ympäristölle ja kanssaihmisten terveydelle aiheutuvien vahinkojen välttämiseksi tuote tulee käsitellä muista jätteistä erillään. Jäte on hyvä kierrättää raaka-aineiksi kestävän ympäristökehityksen takia.

Yrityskäyttäjien tulisi ottaa yhteyttä tavarantoimittajaan ja selvittää hankintasopimuksen ehdot. Tätä tuotetta ei tule hävittää muun kaupallisen jätteen seassa.

Estonia

Õige viis toote kasutusest kõrvaldamiseks
(elektriliste ja elektrooniliste seadmete jäätmed) - Ainult Euroopa

Selline tähistus tootel või selle dokumentidel näitab, et toodet ei tohi kasutusaja lõppemisel kõrvaldada koos muude olmejäätmetega. Selleks, et vältida jäätmete kontrollimatu kõrvaldamisega seotud võimaliku kahju tekitamist keskkonnale või inimeste tervisele ning edendada materiaalsete vahendite säästvat taaskasutust, eraldage toode muudest jäätmetest ja suunake taasringlusse.

Firmad peaksid võtma ühendust tarnijaga ning kontrollima ostulepingu tingimusi ja sätteid. Toodet ei tohi panna muude hävitamiseks mõeldud kaubandusjäätmete hulka.

Spain

Eliminación correcta de este producto
(material eléctrico y electrónico de descarte) - Europa solamente

La presencia de esta marca en el producto o en el material informativo que lo acompaña, indica que al finalizar su vida útil no deberá eliminarse junto con otros residuos domésticos. Para evitar los posibles daños al medio ambiente o a la salud humana que representa la eliminación incontrolada de residuos, separe este producto de otros tipos de residuos y recíclelo correctamente para promover la reutilización sostenible de recursos materiales.

Los usuarios comerciales pueden contactar con su proveedor y consultar las condiciones del contrato de compra. Este producto no debe eliminarse mezclado con otros residuos comerciales.

Greece

Σωστή Διάθεση αυτού του Προϊόντος
(Απορρίμματα Ηλεκτρικού & Ηλεκτρονικού Εξοπλισμού) - Μόνον για την Ευρώπη

Τα σήματα που εμφανίζονται επάνω στο προϊόν ή στα εγχειρίδια που το συνοδεύουν, υποδεικνύουν ότι δεν θα πρέπει να ρίπτεται μαζί με τα υπόλοιπα οικιακά απορρίμματα μετά το τέλος του κύκλου ζωής του. Προκειμένου να αποφευχθούν ενδεχόμενες βλαβερές συνέπειες στο περιβάλλον ή την υγεία εξαιτίας της ανεξέλεγκτης διάθεσης απορριμμάτων, σας παρακαλούμε να το διαχωρίσετε από άλλους τύπους απορριμμάτων και να το ανακυκλώσετε, ώστε να βοηθήσετε στην βιώσιμη επαναχρησιμοποίηση των υλικών πόρων.

Οι επιχειρήσεις-χρήστες θα πρέπει να έλθουν σε επαφή με τον προμηθευτή τους και να ελέγξουν τους όρους και τις προϋποθέσεις του συμβολαίου πώλησης. Το προϊόν αυτό δεν θα πρέπει να αναμιγνύεται με άλλα συνηθισμένα απορρίμματα προς διάθεση.

Germany

Korrekte Entsorgung dieses Produkts
(Elektromüll) - Nur Europa

Anzuwenden in den Ländern der Europäischen Union und anderen europäischen Ländern mit einem separaten Sammelsystem) Die Kennzeichnung auf dem Produkt bzw. auf der dazugehörigen Literatur gibt an, dass es nach seiner Lebensdauer nicht zusammen mit dem normalen Haushaltsmüll entsorgt werden darf. Entsorgen Sie dieses Gerät bitte getrennt von anderen Abfällen, um der Umwelt bzw. der menschlichen Gesundheit nicht durch unkontrollierte Müllbeseitigung zu schaden. Recyceln Sie das Gerät, um die nachhaltige Wiederverwertung von stofflichen Ressourcen zu fördern.

Gewerbliche Nutzer sollten sich an Ihren Lieferanten wenden und die Bedingungen des Verkaufsvertrags konsultieren. Dieses Produkt darf nicht zusammen mit anderem Gewerbemüll entsorgt werden.

Denmark

Korrekt affaldsbortskaffelse af dette produkt
(elektrisk & elektronisk udstyr) - Kun Europa

Mærket på dette produkt eller i den medfølgende dokumentation betyder, at produktet ikke må bortskaffes sammen med almindeligt husholdningsaffald efter endt levetid. For at undgå skadelige miljø- eller sundhedspåvirkninger på grund af ukontrolleret affaldsbortskaffelse skal dette produkt bortskaffes særskilt fra andet affald og indleveres behørigt til fremme for bæredygtig materialegenvinding.

Erhvervsbrugere bedes kontakte leverandøren og læse betingelserne og vilkårene i købekontrakten. Dette produkt bør ikke bortskaffes sammen med andet erhvervsaffald.

Czecho-slovakia

Správná likvidace tohoto produktu
(Znièení elektrického a elektronického zaøízení) - Pouze Evropa

Tato značka zobrazená na produktu nebo v dokumentaci znamená, že by neměl být používán s jinými domácími zařízeními po skončení svého funkčního období. Aby se zabránilo možnému znečištění životního prostředí nebo zranění člověka díky nekontrolovanému zničení, oddělte je prosíme od dalších typů odpadů a recyklujte je zodpovědně k podpoře opětovného využití hmotných zdrojů.

Obchodníci by měli kontaktovat své dodavatele a zkontrolovat všechny podmínky koupě. Tento výrobek by se neměl míchat s jinými komerčními produkty, určenými k likvidaci.

The information contained herein is to the best of our knowledge accurate and complete. However cell species and cell environments may vary in property. Therefore systematic and/or random deviation between estimates obtained by the NucleoCounter® and other cell counting methods may occur. As such, nothing contained or stated herein including results obtained from use of the NucleoCounter® or SCC-Cassette™ shall be construed to imply any warranty or guarantee. ChemoMetec A/S and affiliated companies shall not be held liable for damages and customers shall indemnify ChemoMetec A/S and affiliated companies against liability flowing from use of potentially inaccurate data generated by the NucleoCounter®. It is recommended that all results obtained with the NucleoCounter® are validated against appropriate reference methods and/or traditional laboratory methods at regular intervals.