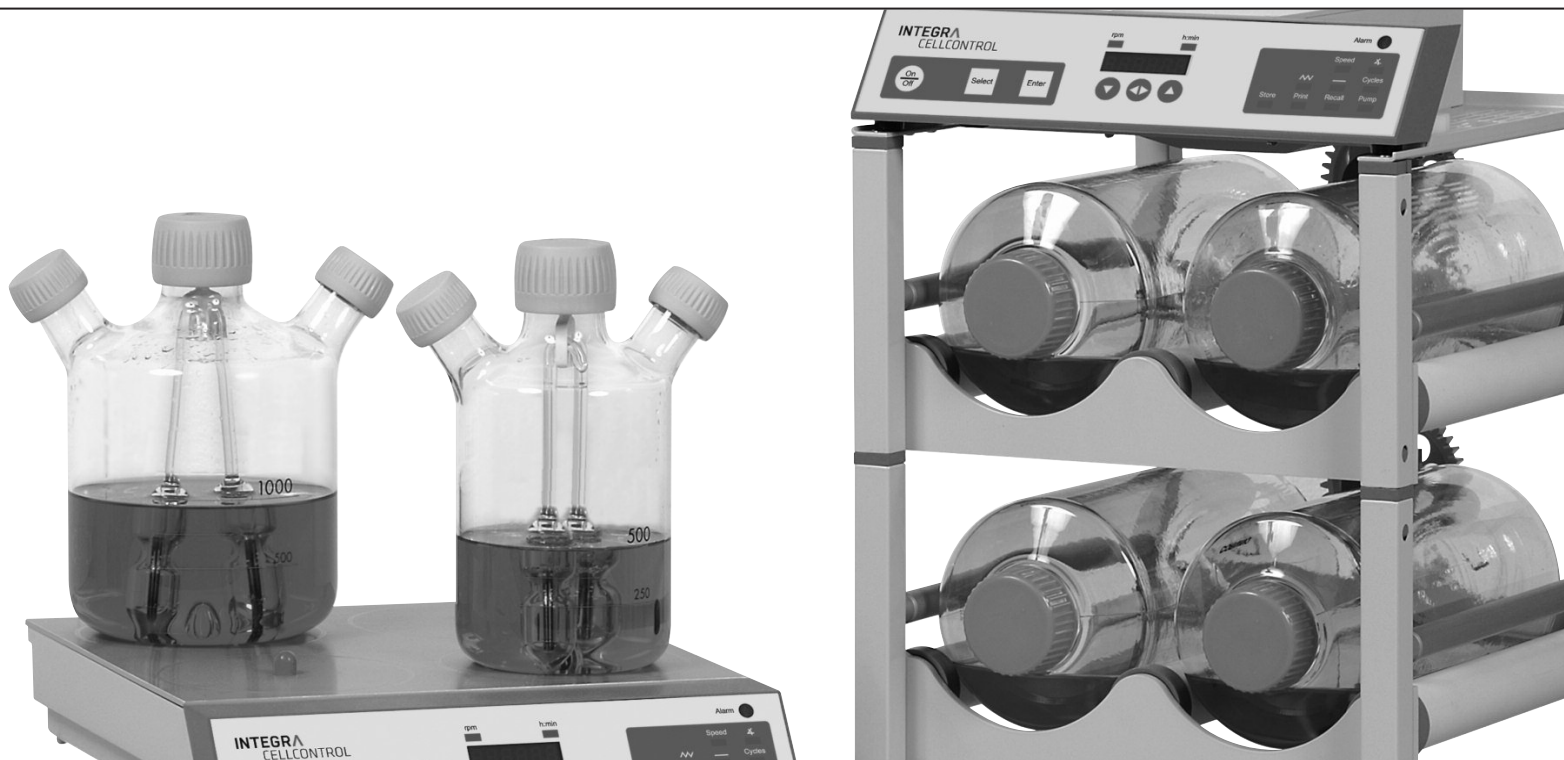# INTEGRA

CELLROLL and **CELLSPIN**   Operating instructions

INTEGRA

Declaration of Conformity | Konformitäts-erklärung | Déclaration de conformité

INTEGRA Biosciences AG – 7205 Zizers, Switzerland

**declares on its own responsibility that the products |
erklärt in alleiniger Verantwortung, dass die Produkte |
déclare sous sa responsabilité exclusive, que les produits**

Description	Type, model
CELLROLL	**186001, 186005**
CELLSPIN	**183001**

in accordance with the EC directives | gemäß der EU-Richtlinien |
sont conforme au terme de la directives CE

2006/95/EC	Low voltage equipment
2004/108/EC	Electromagnetic compatibility
2011/65/EC	Restriction of Hazardous Substances
2002/96/EC	Waste Electrical and Electronic Equipment

are in compliance with the following standards or normative documents: |
mit den folgenden normativen Dokumenten übereinstimmen: |
aux documents normatifs ci-après :

EN 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use, Part 1: General requirements.
EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements.

Standards for Canada and USA

CAN/CSA-C22.2 No. 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use, Part 1: General requirements.
UL Std. No. 61010-1	Safety requirements for electrical equipment for measurement, control and laboratory use, Part 1: General requirements.
FCC, Part 15, Class A	Emission

Zizers, December 9 th 2013

Elmar Morscher
CEO

Thomas Neher
Quality Manager

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1. Safety precautions

General

Throughout the manual, the following symbols will be used to indicate general precautionary measures:

Indication: information on the correct use of CELLROLL/CELLSPIN.

Warning: Warning that, if safety precautions are not observed, damage may result to the instruments. Please read all documentation.

Danger: Warning that, if safety precautions are not observed, injury to personnel may result.

Installation: Location and conditions

CELLROLL/CELLSPIN are intended for use in a laboratory.

Ambient conditions for the devices CELLROLL/ CELLSPIN see chapter Technical data

Warning: Always locate the control unit outside of an incubator if used.

Avoid exposing the control unit and power supply to direct sunlight or high humidity.

Locate CELLROLL in such a way that personnel cannot come in contact with the cogs.

Transport

Always grip CELLROLL on the base when transporting

Conditions of use

CELLROLL is a modular and expandable roller system for cell cultivation and preparation of cell products in roller bottles. It is suitable for use with adherent cells and cell suspensions. The instrument is not designed for any other applications and should therefore not be used for such.

CELLSPIN is a spinning system comprising four stirring units for the gentle cultivation of cells and the preparation of cell products in spinning vessels. It is suitable for use with cell suspensions and immobilised adherent cells (e.g. microcarriers/alginate inclusion). The instrument is not designed for any other applications and should therefore not be used for such.

Dangers involved when safety precautions are not observed

CELLROLL/CELLSPIN are state-of-the-art instruments with respect to current technology and are safe to use. Some danger may exist if the instruments are used by untrained personnel. Any person given the task of operating CELLROLL/CELLSPIN must first read the operating and safety instructions and understand them fully or be thoroughly trained by a superior in the use of the instruments before operating the instrument.

Safety at work

Independent of any safety precautions listed here, all other relevant safety aspects - e.g. GLP, GMP, professional trade associations, Department of Health, trade supervisory authorities - must be observed.

Qualification of operating personnel

Normally, a technical qualification is required. Specialist knowledge is required when using CELLROLL/CELLSPIN if all danger is to be avoided.
Personnel without formal technical qualifications do not as a rule possess such specialised information and should therefore only be allowed to operate CELLROLL/CELLSPIN if properly trained and under the supervision of suitably qualified personnel.

Safety aspects for the user company

The supervisors of operating personnel must have read and understood all the safety precautions involved and must ensure that these are adhered to. They must also ensure that operating personnel also understand and observe all safety rules.
Prior to operating CELLROLL/CELLSPIN, the supervisor must ensure that no other dangers exist, especially if other instruments and systems are also being used.
If necessary, additional safety instructions must be compiled by the supervisor. The user company must, if necessary, in order to exclude all possible danger, compile explicit safety instructions and have these signed by the staff responsible. In addition, clear competences must be established as to who is responsible for the operation of CELL-ROLL/CELLSPIN so that these potential dangers can be reduced to an absolute minimum.

Changes in configuration/design by user

No changes may be made to CELLROLL/CELLSPIN. Any parts that become defective must be replaced by original INTEGRA Biosciences parts.

CELLROLL/CELLSPIN may not be altered in design or in any of their safety aspects without the express written permission of INTEGRA Biosciences. In particular, no alterations may be made to any of the protective functions. Any alteration made releases INTEGRA Biosciences from any liability for damage caused.

Power requirements

Checking the power supply

Check the power supply at the location and ensure that it complies with that of the instrument.

Indication: Using the wrong power supply may damage electronic components in the instrument.

Connecting to the power supply

Connect CELLROLL/CELLSPIN to the power supply using the cable provided.

Danger: The instrument may not be used if insufficient protection is provided as this may expose personnel to the danger of electrical current injury.

NB: When connecting or disconnecting the instrument from the control unit the latter must always first be switched off otherwise the electronics may be damaged or a program interrupted.
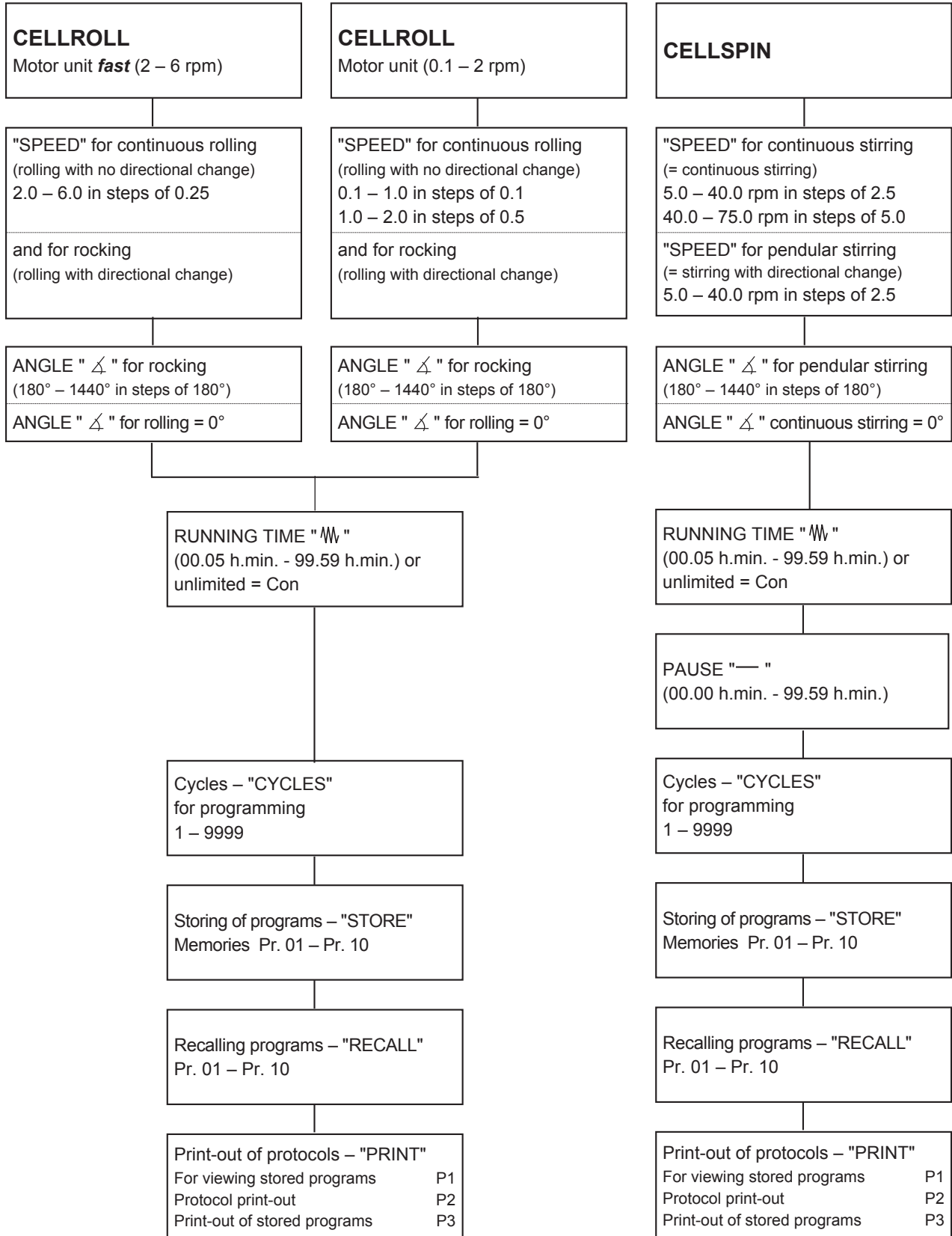
2. Technical data

2.1 Technical data

CELLSPIN

	Width	Depth	Height
Drive:	295 mm	330 mm	60 mm
Control unit:	295 mm	80 mm	60 mm
Speed:	5 – 75 rpm		
Power Supply:			
Input:	100 – 240 VAC/47 – 63 Hz/1.6 A		
Output:	9.5 VDC/4.0 A/38 W		
Weight:			
Control unit:	0.5 kg		
Stirrer unit:	2.9 kg		
Operating Condition:			
Operation Stirrer unit:	5 – 40 °C/max. 99% RH/max. 10% CO_2		
Operation Control unit:	5 – 40 °C/max. 80% RH		
Storage:	-10 – 50 °C/max. 95% RH		
Degree of protection:			
Stirrer unit:	IP54		
Control unit:	IP21		

CELLROLL

	Width	Depth	Height
1 Deck	295 mm	360 mm	240 mm
2 Decks	295 mm	360 mm	400 mm
3 Decks	295 mm	360 mm	560 mm
4 Decks	295 mm	360 mm	720 mm
Control unit:	295 mm	80 mm	60 mm
Speed:	"Motor unit": 0.1 – 2.0 rpm		
	"Motor unit *fast*": 2.0 – 6.0 rpm		
Power Supply:			
Input:	100 – 240 VAC/47 – 63 Hz/1.6 A		
Output:	9.5 VDC/4.0 A/38 W		
Weight:			
Motor unit:	1.85 kg		
Deck:	1.7 kg		
Operating Condition:			
Operation			
Motor-unit/ Deck:	5 – 40 °C/max. 99% RH/max. 10% CO_2		
Operation Control unit:	5 – 40 °C/max. 80% RH		
Storage:	-10 – 50 °C/max. 95% RH		
Degree of protection:			
Motor-unit/Deck:	IP54		
Control unit:	IP21		

3. Abridged operating instructions CELLROLL/CELLSPIN

3.1 Instrument parameters

CELLROLL Motor unit *fast* (2 – 6 rpm)	**CELLROLL** Motor unit (0.1 – 2 rpm)	**CELLSPIN**
"SPEED" for continuous rolling (rolling with no directional change) 2.0 – 6.0 in steps of 0.25	"SPEED" for continuous rolling (rolling with no directional change) 0.1 – 1.0 in steps of 0.1 1.0 – 2.0 in steps of 0.5	"SPEED" for continuous stirring (= continuous stirring) 5.0 – 40.0 rpm in steps of 2.5 40.0 – 75.0 rpm in steps of 5.0
and for rocking (rolling with directional change)	and for rocking (rolling with directional change)	"SPEED" for pendular stirring (= stirring with directional change) 5.0 – 40.0 rpm in steps of 2.5
ANGLE " ∡ " for rocking (180° – 1440° in steps of 180°) ANGLE " ∡ " for rolling = 0°	ANGLE " ∡ " for rocking (180° – 1440° in steps of 180°) ANGLE " ∡ " for rolling = 0°	ANGLE " ∡ " for pendular stirring (180° – 1440° in steps of 180°) ANGLE " ∡ " continuous stirring = 0°

RUNNING TIME " 〽 " (00.05 h.min. - 99.59 h.min.) or unlimited = Con	RUNNING TIME " 〽 " (00.05 h.min. - 99.59 h.min.) or unlimited = Con
	PAUSE "— " (00.00 h.min. - 99.59 h.min.)
Cycles – "CYCLES" for programming 1 – 9999	Cycles – "CYCLES" for programming 1 – 9999
Storing of programs – "STORE" Memories Pr. 01 – Pr. 10	Storing of programs – "STORE" Memories Pr. 01 – Pr. 10
Recalling programs – "RECALL" Pr. 01 – Pr. 10	Recalling programs – "RECALL" Pr. 01 – Pr. 10
Print-out of protocols – "PRINT" For viewing stored programs P1 Protocol print-out P2 Print-out of stored programs P3	Print-out of protocols – "PRINT" For viewing stored programs P1 Protocol print-out P2 Print-out of stored programs P3

3.2 Brief description of keys and functions

Keys:

1 **ON/OFF:**   Switches the instrument on/off

2 **SELECT:**   Switches between parameters. The corresponding green LED will light and the most recently set value will appear in the display.

3 **ENTER:**   For confirming the value entered.

4 ∨/∧**:**   Keys "∨" and "∧" alter the corresponding parameters stepwise, the values being shown on the display.
By keeping keys "∨" and "∧" pressed, all parameter values are displayed in rapid sequence.

5 **< >:**   For:
a) Changing e.g. from hours to minutes and vice versa when setting time.
b) Switching between OUTPUT 1 and OUTPUT 2 in the functions "SPEED" and "RECALL".
c) Activating/deactivating the print options P2 and P3 in the function "PRINT".

Function LED's :

6 **STORE:**   Storing of programs

7 **PRINT:**   P1: Display of stored programs
P2: Setting the printing interval
P3: Print out of stored programs

8 **RECALL:** Recalling stored programs

9 **PUMP:**   Additional function

10 **CYCLES:** Number of times a program should be repeated

11 ∡ **:**   Angle for pendular/circular stirring and rocking/rolling

12 **ALARM:**   Red lamp lights if there is malfunction

13 **SPEED:**   Speeds for pendular/circular stirring and rocking/rolling and for selecting between OUTPUT 1 and OUTPUT 2

14 ─── **:**   Pause between two programmed runs

15 ⋀⋁ **:**   Running time (specific/continuous) for pendular or continuous stirring, rocking or rolling

16 **h/min:**   Activated during entry of time parameter

17 **rpm:**   Activated during entry of speed

3.3 Abridged operating instructions - CELLROLL

NB: The control unit must always be located outside the incubator!

– Connect CELLROLL to the control unit with the cable provided.
If connection <u>has not been made</u>, "Err 02" will appear on the display on starting the instrument. Check the connection and cancel the error message by pressing "ENTER".

– In the event of a power failure, any unstored data of <u>both</u> outputs will be <u>automatically</u> stored and recalled once the power has been restored. The "Err 03" in the display can be cancelled by pressing "ENTER".

Entering the program for working with CELLROLL

☞ Switch on the instrument by pressing the ON/OFF key. The green LED under "RECALL" will light.

☞ Press "SELECT" and select the function "SPEED".

In the function "SPEED":
Selecting the output:
☞ Select OUTPUT 1 or OUTPUT 2 via key "< >".

Setting the rolling speed:
CELLROLL is equipped with two different motors. The control unit will always select the right one.

"CELLROLL" Motor unit (0.1-2.0 rpm):
☞ Set the speed within the range **0.1 - 2.0 rpm** via "∨" and "∧". Confirm by pressing "ENTER".

"CELLROLL" Motor unit *fast* (2.0-6.0 rpm):
☞ Set the speed within the range **2.0 - 6.0 rpm** via "∨" and "∧". Confirm by pressing "ENTER".

In the function " ∢ ":
Selecting the pendular angle:
☞ For **continuous rolling** (no directional change), set the pendulum angle to "0°" via "∨". Confirm by pressing "ENTER".

☞ For **rocking** (with directional change), set the pendulum angle within the range **180° - 1440°** (= 0.5 - 4.0 bottle revolutions). Confirm by pressing "ENTER".

NB: If "**rocking**" has been selected, please observe the restrictions imposed below under " ⋀⋀ " and "–".

In the function " ⋀⋀ ":
Set the rolling duration:
The duration of continuous rolling or rocking can be set to:
- A limited time between **00.05 (h/min) - 99.59 (h/min)**, or
- An unlimited time as "**Con**".

☞ To select a <u>specific rolling duration</u>, set hours and/or minutes via the "< >" key and alter via "∨" and "∧". Confirm by pressing "ENTER".

☞ To select <u>continuous rolling or rocking operation</u>, activate the h/min function and press the "∨" key until the display shows less than 0.05 and "Con" appears. Confirm by pressing "ENTER".

In the function " – ":

The pause interval cannot be selected for either motor unit and is overrun.

In the function "CYCLES":

Repeating programs:

Programs can be set to repeat within the range **1 - 9999**.

☞ Select the required value via "∨" and "∧". Confirm by pressing "ENTER".

NB: If in the function " ⋀⋀⋁ " continuous stirring has been selected, "Con" will appear automatically under "CYCLES".

In the function "STORE":

Storing programs:

Up to 10 programs can be stored in separate memories.

☞ Select a memory between **Pr. 01 and Pr. 10** via keys "∨" and "∧". Confirm by pressing "ENTER".

In the function "RECALL":

Recalling stored programs:

☞ Select a memory between **Pr. 01 and Pr. 10** via keys "∨" and "∧". Confirm by pressing "ENTER". Three beeps will be given and the program will start.

NB: When recalling a program, please remember to take the output into account.

Selecting the output:

☞ Key "< >" can be used to select OUTPUT 1 or 2.

Additional functions: "PRINT" and "PUMP":

Information on the operating steps for these functions along with the options

P1 = view stored programs
P2 = entering print interval
P3 = Print-out of stored programs

is given in the detailed operating instructions.

3.4 Abridged operating instructions - CELLSPIN

NB: The control unit must always be located outside the incubator!

– Connect CELLSPIN to the control unit with the cable provided. If connection <u>has not been made</u>, "Err 02" will appear on the display on starting the instrument. Check the connection and cancel the error message by pressing "ENTER".

– In the event of a power failure, any unstored data of <u>both</u> outputs will be <u>automatically</u> stored and recalled once the power has been restored. The "Err 03" in the display can be cancelled by pressing "ENTER".

Entering the program for working with CELLSPIN:

☞ Switch on the instrument by pressing the "ON/OFF" key. The green LED under "RECALL" will light.

☞ Select the function "SPEED" by pressing "SELECT".

In the function "SPEED":
Selecting the required output:

☞ Select OUTPUT 1 or OUTPUT 2 via key "< >".

Selecting the stirring speed:

NB: In the "SPEED" mode, the rpm limit for pendular stirring must be taken into account so that the pendulum angle " $\measuredangle$ " can be set.

☞ For **continuous stirring** (no directional change), set the speed within the range **5 - 75 rpm** and for **pendular stirring** (stirring with directional change) within **5 - 40 rpm** via "$\vee$" and "$\wedge$". Confirm by pressing "ENTER".

In the function " $\measuredangle$ ":

NB: The function " $\measuredangle$ " can only be selected when the set speed is $\leq$ 40 rpm. If a value > 40 rpm has been selected, the " $\measuredangle$ " function will be overrun and the angle automatically set to "0".

Selecting the pendular angle:

☞ For **continuous stirring**, set the pendulum angle to "0°" via "$\vee$". Confirm by pressing "ENTER".

☞ For **pendular stirring**, set the pendulum angle via keys "$\vee$" and "$\wedge$" within the range **180° - 1440°**. Confirm by pressing "ENTER".

In the function " $\mathcal{W}$ ":
Setting the stirring duration:

The duration of stirring can be set to:
- A limited time between **00.05 (h/min) - 99.59 (h/min)**, or
- An unlimited time as "**Con**".

☞ To select a <u>specific stirring duration</u>, set hours and/or minutes via the "< >" key and alter via "$\vee$" and "$\wedge$". Confirm by pressing "ENTER".

☞ To select <u>continuous stirring</u>, activate the h/min function with the "< >" key and press the "$\vee$" key until the display shows less than 0.05 and "Con" appears. Confirm by pressing "ENTER".

In the function " – ":

Setting the interval:

Within any program, an interval can be freely selected within the range **00.00 (h/min) - 99.59 (h/min)**.

☞ Choose the position for hours and minutes via key "< >" and set the interval via keys "∨" and "∧". Confirm by pressing "ENTER".

In the function "CYCLES":

Repeating programs:

Programs can be set to repeat within the range **1 - 9999**.

☞ Select the required value via "∨" and "∧". Confirm by pressing "ENTER".

NB: If in the function " ⋀⋁⋀ " continuous stirring has been selected, "Con" will appear automatically under "CYCLES".

In the function "STORE":

Storing programs:

Up to 10 programs can be stored in separate memories.

☞ Select a memory between **Pr. 01 and Pr. 10** via keys "∨" and "∧". Confirm by pressing "ENTER".

In the function "RECALL":

Recalling stored programs:

☞ Select a memory between **Pr. 01 and Pr. 10** via keys "∨" and "∧". Confirm by pressing "ENTER". Three beeps will be given and the program will start.

NB: When recalling a program, please remember to take the output into account.

Selecting the output:

☞ OUTPUT 1 or OUTPUT 2 can be selected via key "< >".

Additional functions: "PRINT" and "PUMP":

Information on the operating steps for these functions along with the options

P1 = view stored programs
P2 = entering print interval
P3 = Print-out of stored programs

is given in the detailed operating instructions.

4.1 Equipment provided - CELLROLL
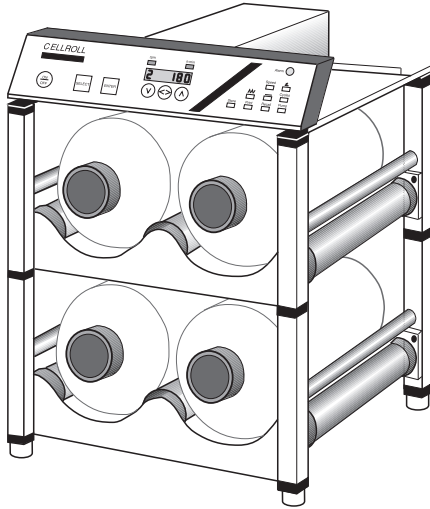
CELLROLL (Part. No. 186 001) or
CELLROLL *fast* (Part. No. 186 005) comprises:

1 Control unit

1 "Drive unit", 0.1-2.0 rpm (for 186 001)

or

1 "Drive unit *fast* ", 2.0-6.0 rpm (for 186 005)

2 Decks for 4 roller bottles
(incl. connectors for assembly)

1 Power cable

1 Mains adapter

1 Control cable, length 2 m

1 Operating instructions

Accessories:

	Part No.
Deck for system extension (2 roller bottles per deck)	186 026
Storage deck for horizontal extension, with drive belt, spacers and deck cover (Deck 186 026 not included)	186 030
Control cable for 2nd output, length 2 m	186 050
Interface cable for connection to printer or PC	186 041
Drive unit *standard* (0.1 - 2.0 rpm), incl. control cable	186 015
Drive unit *fast* (2.0 - 6.0 rpm), incl. control cable	186 020
Control unit incl. mains adapter	186 013
Mains adapter	186 238

4.2 Equipment provided - CELLSPIN
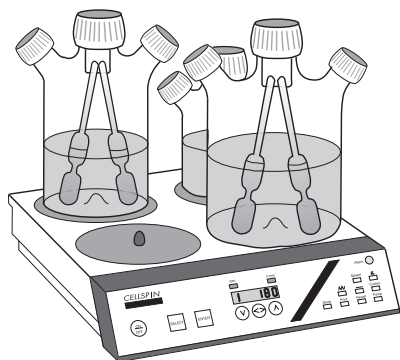
CELLSPIN (Part No. 183 001) comprises:

1 Stirring platform incl. control cable

1 Control unit incl. mains adapter

1 Power cable

1 Mains adapter

1 Control cable, length 2 m

1 Operating instructions

Accessories:	Article No.
Control cable for 2nd output, length 2 m	186 050
Control unit incl. mains adapter	183 013
Interface cable for connection to printer or PC	186 041
Stirring platform	183 015
Mains adapter	186 238
Conversion kit for using CELLSPIN with impeller-type flasks	183 260
Spinner flasks (www.integra-biosciences.com)	

4.3 Control unit for CELLROLL/CELLSPIN

9,5 V⎓,3 A
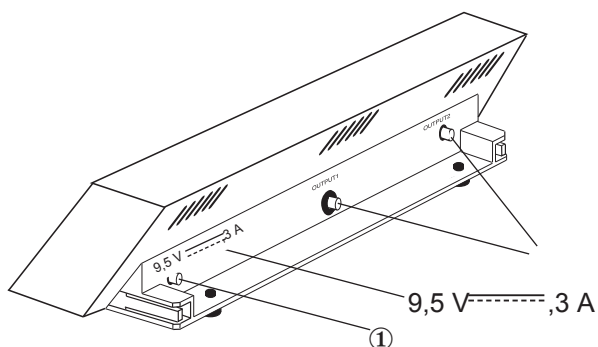
The CELLROLL/CELLSPIN control unit includes:

① Connection for power cable and integrated interface
   RS 232 C for connecting a printer/PC (activated via Y-cable)
   to POWER IN.

Two asynchronous outputs - OUTPUT 1 and OUTPUT 2
for connecting: – 1 CELLSPIN and 1 CELLROLL
                  – or 2 CELLSPINS or 2 CELLROLLS

4.4 Designation of individual instrument parts

CELLROLL - Motor unit
① Socket
② Deck
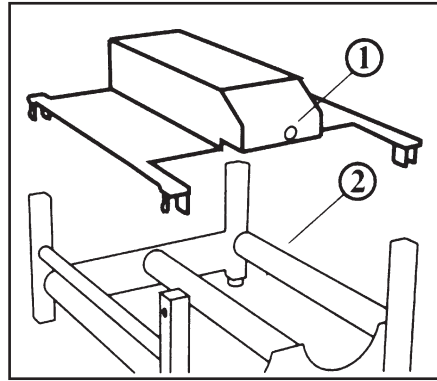
CELLSPIN -stirring unit with 4 stirrers
③ Left cable channel
④ Socket
⑤ Right cable channel
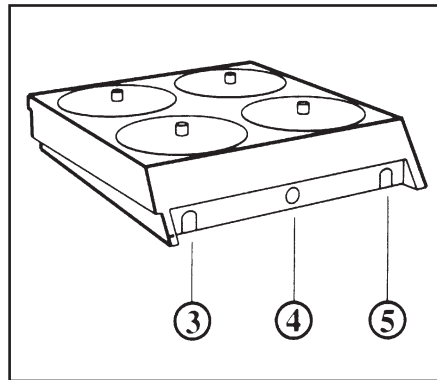
Control cable
⑥ Socket
⑦ Plug
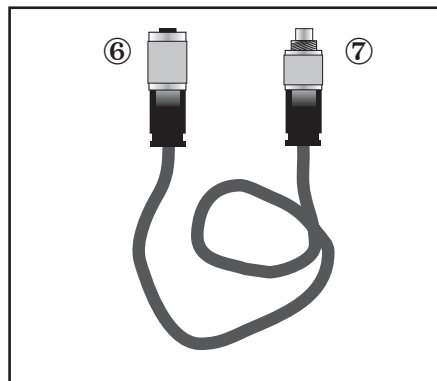
Mains cable
⑧ Socket
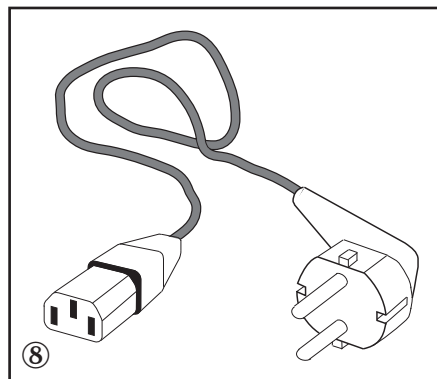
4.5 Vertical assembly - CELLROLL

☞ Insert 4 connectors and 4 end pieces each into the bottom and the top of the first deck until they audibly fit into position.

Via further connectors, up to four decks may be connected vertically. The top deck of a tower remains without connectors. The gears of the decks mesh together automatically. Locate CELLROLL in such a way that personnel do not come in contact with the cogs.

⚠ NB: Never stack more than 4 decks at any one time.

⚠ NB: When transporting CELLROLL, always grip the lower deck.
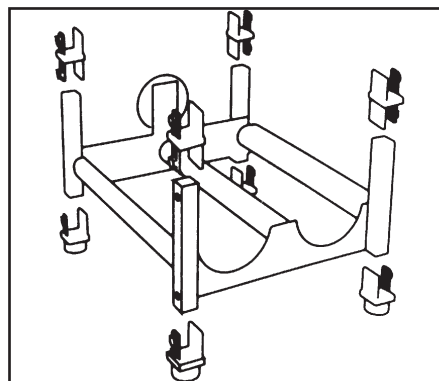
☞ Place the CELLROLL motor unit with its ex-factory fitted connectors on the last free deck and ensure that it engages in position.

If running special applications in which the usual cell culture conditions (temperature, humidity etc.) are not necessary, the control unit can be fitted directly to the guide slot on the motor unit.

⚠ NB: Before locating CELLROLL/CELLSPIN, please read and observe the safety conditions listed in section 1.
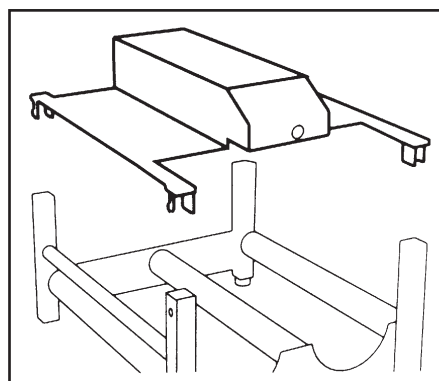
☞ Connect the plug of the low voltage cable ① to "POWER IN" at the rear of the control unit and tighten.

☞ Place the power cable in the cable clips located at the side of the shelf of the motor unit. If necessary, mount additional clips at the rear of the tower. Insert cable.

⚠ Take care that the cable does not come into contact with the cogs.

☞ Connect the power supply to power.

⚠ NB: Always locate the control unit outside of the incubator.

18
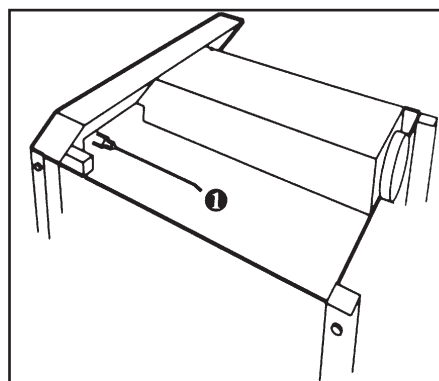
4.6 Horizontal assembly - CELLROLL

☞ Place two modules furnished with end pieces/intermediaries next to each other.
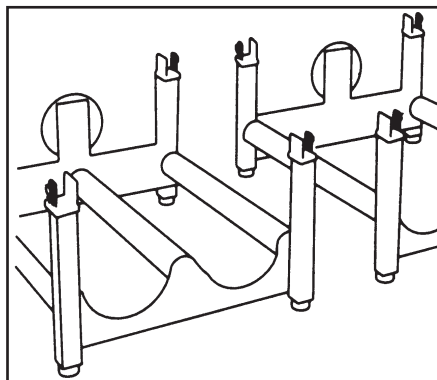
☞ Snap two double-clips onto the round stud of the right module.
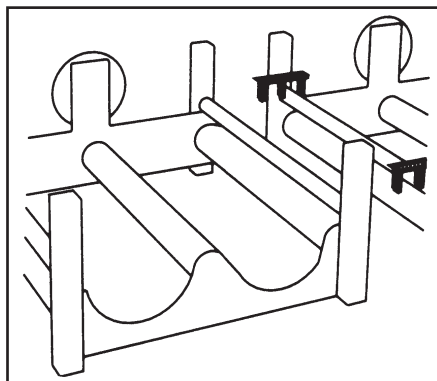
☞ Place synchronous belt on both crown gears.

☞ Snap the mounted double-clips onto the round stud of the left modu-le.

Now the synchronous belt is stretched.

Up to three additional decks may be added vertically if they are connected with intermediaries.
The individual module's composition gears mesh together auto-matically.

The top deck or each tower remains without intermediaries.

Continue assembly following the instructions.

☞ Place the CELLROLL motor unit with its ex-factory fitted con-nectors on the top deck of one of the towers and ensure that it engages in position.

☞ Connect the control cable to the flange socket of the motor unit and to OUTPUT 2 of the electronics unit.
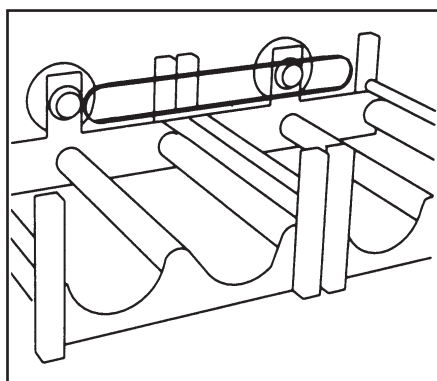
⚠ NB: Never stack more than 4 decks at any one time.

⚠ NB: When transporting CELLROLL, always grip the lower deck.

☞ Connect the low voltage cable plug ① to "POWER IN" at the rear of the instrument and tighten.

☞ Insert the low voltage cable in the side clips of the motor unit.

⚠ NB: Ensure that the cable does not come into contact with the cogs.

☞ Add more cable clips on the back of one of the towers as it appears appropriate and use them to guide mains cable.

☞ Mount stacker plate onto the second tower with intermediaries.

☞ Connect the power pack to the source of electricity.

⚠ NB: Always locate the control unit outside of the incubator.
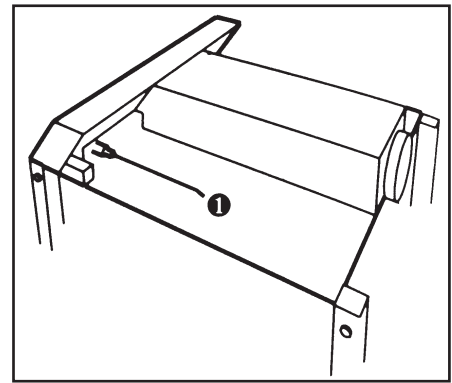
4.7 Disassembly - CELLROLL

☞ Disconnect the power cable.

☞ Remove the low voltage cable from the clips.

☞ Disconnect the plug of the low voltage cable from control unit.

☞ Press the green knobs on the framework and disconnect the decks.
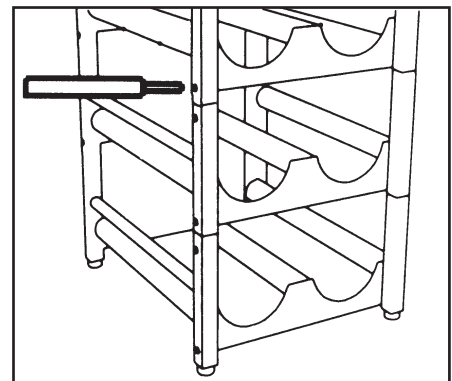
☞ Disassemble motor unit and decks.

4.8 Putting a CELLSPIN stirring unit into operation

☞ Insert the low voltage cable into the right hand duct on the base of the stirring unit housing.
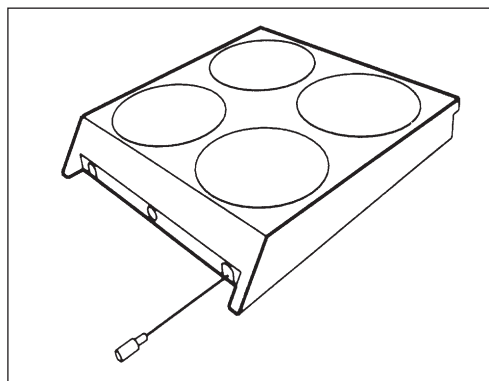
☞ Connect the low voltage cable to "POWER IN" at the rear of the control unit and tighten.

☞ Connect control cable to OUTPUT 1/2 of the control unit to the flange socket of the stirring unit.

If running special applications in which the usual cell culture conditions (temperature, humidity etc.) are not necessary, the control unit can be fitted directly to the guide slot on the motor unit. Ensure that it engages.

⚠ NB: In setting up CELLROLL/CELLSPIN, please observe the conditions for location and setting up as outlined in section 1.

POWER IN
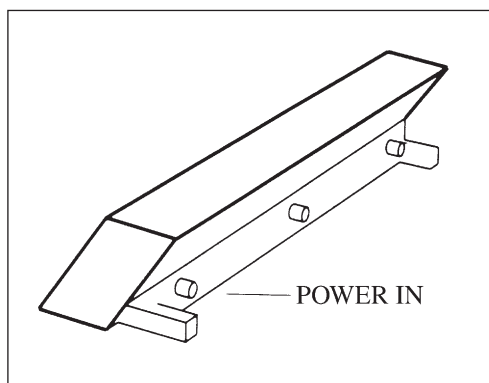
☞ Connect power supply to source of electricity.

⚠ NB: Always locate the control unit outside of the incubator.

If two stirring units are used, these should be connected via two control cables to OUTPUTS 1/2 of the electronics unit.

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4.9 Connection to a printer or PC

☞ Connect the female, 4-pin socket ❶ of the Y-cable (186.041) to the power input of the control unit.

☞ Connect the male, 4-pin plug ❷ of the Y-cable to the power supply.


Printer with serial interface

☞ Connect the Sub-D9 plug ❸ to the serial interface of the printer.

Printer with parallel interface

☞ Connect the Sub-D9 plug ❸ to the printer using the delivered female-female adapter (gender changer) ❹ and a serial-parallel converter.

PC with hyperterminal software

☞ Connect the Sub-D9 plug ❸ to the serial port of the PC using the delivered female-female adapter (gender changer) ❹ and the delivered Null Modem adapter ❺.
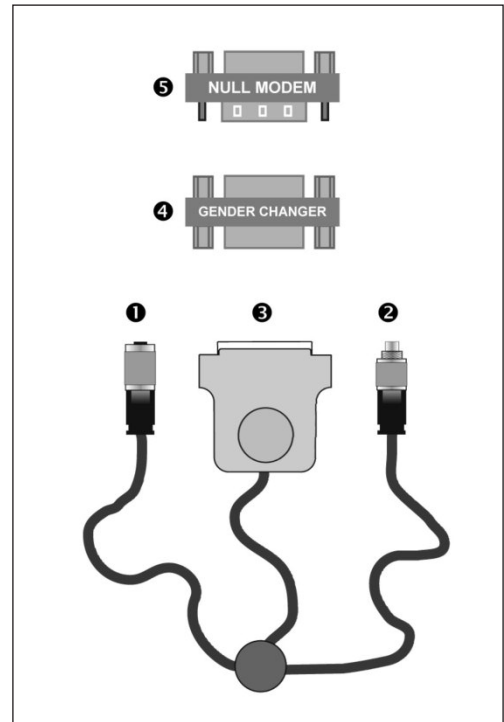
RS 232 parameters setting for the printer/hyperterminal software

Baud rate: 2400
Parity: none
Data bits: 8
Start bit: 1
Stop bit: 1

4.10 Equipment disposal

The CELLROLL and CELLSPIN motor units and the control unit are labelled with the "crossed-out wheeled bin" symbol to indicate that this equipment must not be disposed of with unsorted municipal waste. Instead, it is your responsibility to correctly dispose of your waste equipment by handing it over to an authorised facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical, and/or radiological contamination so as to protect from health hazards the persons involved in the disposal and recycling of equipment.

For more information about where you can drop off your waste equipment for recycling, please contact your local dealer from whom you originally purchased the product or your local council.

By doing so, you will help conserve natural resources and you will ensure that your waste equipment is recycled in a manner that protects human health and the environment. Thank you!

5. Detailed Operating Instructions

Please read and observe the safety precautions listed on page 5.

> **i**   1. If, during entry of a new program or alteration of individual parameters a pause >120 sec arises, the current speed will appear in the display.
>
> 2. Alterations in the functions are indicated by the display blinking. The new entry is confirmed by pressing the ENTER key resulting in the display stopping to blink.

5.1 Operating steps

Starting and stopping the system

Switching on the instrument:

☞ Press the "ON/OFF" key. All LEDs will blink and the display will briefly show 8.8.8.8.8.8. The green light under "RECALL" will light. The last selected output (OUTPUT 1 or OUTPUT 2) will appear at the left-hand side of the display. The last activated program number will appear, blinking, at the right-hand side of the display.

Switching off the instrument:

☞ Press the "ON/OFF" key; the instrument is switched off after about 5 sec. which is indicated by the appearance of a red point in the display.

Selection of OUTPUT 1 or OUTPUT 2

These outputs can be selected in the function "SPEED".

If only <u>one</u> instrument has been connected, the control unit will automatically select the correct output.

If two instruments are connected:

☞ Press the "SELECT" key until the green light under "SPEED" and "rpm" lights.

The selected OUTPUT will appear at the left-hand side of the display whilst the current set stirring speed will appear at the right-hand side.

☞ By pressing key "< >" either OUTPUT 1 or OUTPUT 2 can be selected.

Allocation of connected instruments

If CELLSPIN/CELLROLL is located in an incubator, the display of the externally located control unit will indicate which instrument is connected to which OUTPUT.

Procedure:

☞ Select the required OUTPUT 1 or OUTPUT 2 (in the function "SPEED") by briefly pressing the "< >" key.

By **continuously** pressing key "< >", the instrument allocation will appear in the display:

- CS for CELLSPIN
- Cr for CELLROLL with "motor unit" 0.1 to 2.0 rpm
- CrF for CELLROLL with "motor unit *fast*": 2.0 to 6.0 rpm

5.2 CELLSPIN –
Instrument-specific functions

Stirring speed - "SPEED"

In the function "SPEED", the speed for

circulatory stirring = continuous stirring
or for **pendular stirring = stirring with directional change**

can be set according to the following table:

Circulatory stirring	„SPEED" rpm	Angle ∡
	5 – 40 rpm in steps of 2.5	0°
	40.0 – 75 rpm in steps of 5.0	0°

Pendular stirring	„SPEED" rpm	Angle ∡
	5.0 - 40.0 rpm in steps of 2.5	180°– 1440°

i	N.B.: The function "angle" can only be activated if a speed of 40 rpm or less has been selected. If an entry of > 40 rpm is made, the angle function can not be used and will be overrun automatically.

Setting the pendular and stirring speeds:

☞ Press the "SELECT" key until the green light under "SPEED" and "rpm" lights. The currently set speed will appear in the display.

☞ Set the required speed using keys "∨" or "∧". The display will blink.
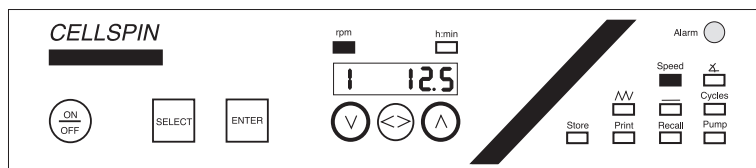
☞ Press the "ENTER" key to confirm entry.

Setting the angle for pendular stirring

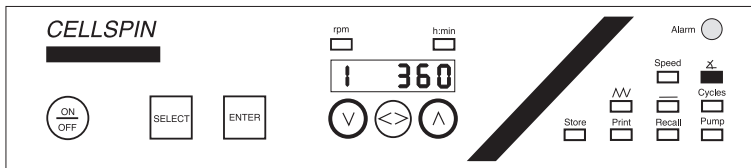| | In the function " ∡ " the angle for pendular stirring can be set. |

Pendular stirring	Angle ∡	„SPEED" rpm
	180°–1440°	5.0 – 40.0 rpm in steps of 2.5

* If values > 40 rpm are entered, the angle " ∡ "will <u>automatically</u> be overrun.

Pendular stirring:

☞ Press the "SELECT" key until the green light under " ∡ " lights.
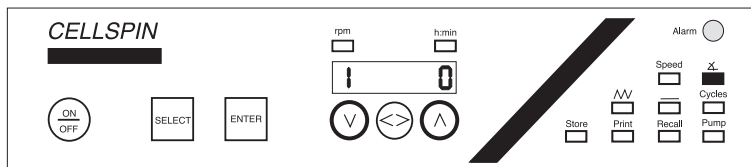
☞ Set the required value using keys "∨" or "∧".

☞ Press the "ENTER" key to confirm the values.

Circulatory stirring:

☞ Press the "SELECT" key until the green light under " ∡ " lights.

☞ Enter "0" using the "∨" key.

☞ Press the "ENTER" key. The value entered will be confirmed.

Interval mode "–––––"

In the function "––", the time interval between repetition of the program can be set.

| ℹ | For both motor units of CELLROLL the function pause can not be selected and will be automatically overrun. |

The interval between program runs can be set for CELLSPIN within the range 00.00 h.min to 99.59 h.min.

☞ Press the "SELECT" key until the green light under "––" and "h.min" lights. The current setting will be shown in the display.

The "< >" key can be used to switch from hours to minutes. Set the required values using keys "∨" or "∧".
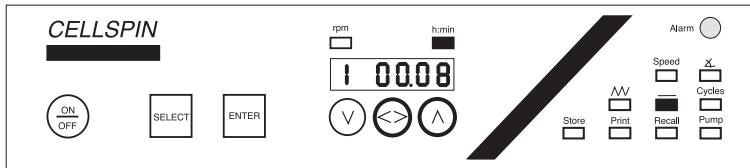
☞ Press the "ENTER" key to confirm the settings.

For entry of functions running time, cycles, print, see following pages.

5.3 CELLROLL –
Instrument-specific functions

| ℹ | The roller system CELLROLL is available with two types of motor unit: |

"Motor unit" (0.1 to 2.0 rpm)
"Motor unit *fast*" (2.0 to 6.0 rpm)

The control unit automatically recognises the type of motor unit connected and indicates the appropriate ranges in the display.

Setting the speed for continuous rolling and rocking - "SPEED":

In the function SPEED, the speeds for

continuous rolling = rolling without directional change
and **rocking** = rolling with directional change

can be set according to the following table:

Continuous rolling	"SPEED" rpm	Bottles turns per minute	Angle
"Motor unit"	0.1 - 2.0 rpm	0.1 – 2.0	0°
"Motor unit *fast*"	2.0 - 6.0 rpm	2.0 – 6.0	0°

Rocking	"SPEED" rpm	Bottles turns per rocking cycle	Angle
"Motor unit"	0.1 – 2.0 rpm	0.5 – 4.0	180° – 1440°
"Motor unit *fast*"	2.0 – 6.0 rpm	0.5 – 4.0	180° – 1440°

Setting the speed for continuous rolling and rocking:

☞ Press the "SELECT" key until the green light under "SPEED" and "rpm" lights. The currently set and speed will appear in the display.
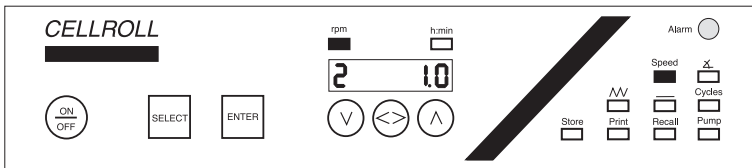
☞ Set the required speed using the "∨" or "∧" keys. The display will blink.

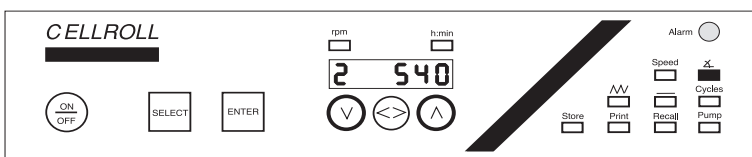☞ Press the "ENTER" key to confirm. Function will be carried out.

Setting the angle for rocking

i In the function " ∡ " the pendular angle rocking can be set.
Continuous rolling: set the rocking angle to 0°.

Rocking:

☞ Press the "SELECT" key until the green light under " ∡ " lights.

☞ Set the required value using key "∨" or "∧".
☞ Press the "ENTER" key to confirm. Function will be carried out.

Continuous rolling:

☞ Press the "SELECT" key until the green light under " ∡ "lights.

☞ Set "0" using the "∨" key.

☞ Press the "ENTER" key to confirm the value. Function will be carried out.
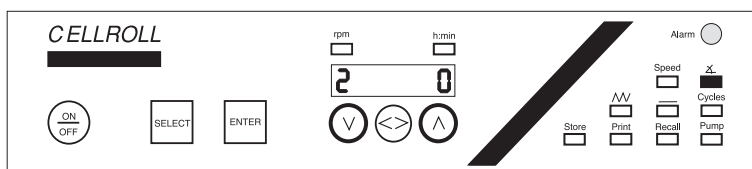
For setting running time, cycles, see following pages.

5.4 CELLROLL/CELLSPIN - common functions

Running time mode " 〰 "

The running time is the duration of stirring or rolling and can be set from:

- 00.05 h.min to 99.59 h.min or
- unlimited = Con

In the mode " 〰 ", the key "< >" can be used to change between hours and minutes.

Entry of a specified running time

Example: Running time of 12 hours 15 minutes:

☞ Press the "SELECT" key until the green light under " 〰 " and "h.min." lights.

☞ Press the "< >" key. This activates the minute setting. Both right-hand numerals will blink.
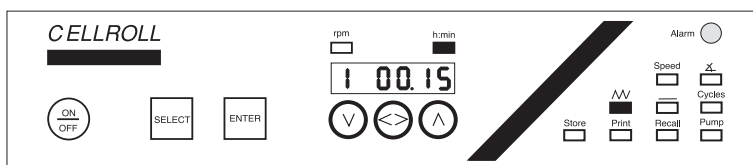
☞ Set a value of 15 using keys "∨" or "∧".

☞ Press key "< >". This activates the hour setting. Both left-hand numerals will blink.

☞ Set the value of 12 using keys "∨" or "∧".
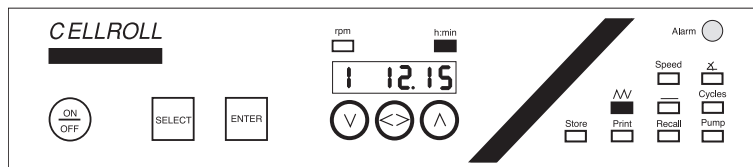
☞ Press the "ENTER" key. The running time starts immediately.

Entry of unlimited running time

☞ Press the select key until the green light under " 〰 " and under "h.min." lights. The current value will appear in the display.

☞ Press the "< >" key to activate hours/minutes entry.
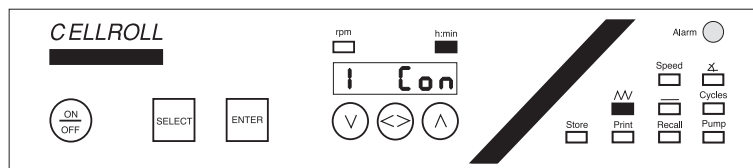
☞ Press the "∨" key until "Con" appears in the display below 0.05.

☞ Press the "ENTER" key. "Con" will appear in the display.

Cycle mode "CYCLES"

In the "CYCLES" mode, the number of cycles can be set from 1 to 9999. One cycle is the combination of the set running time and the set interval (see CELLSPIN).
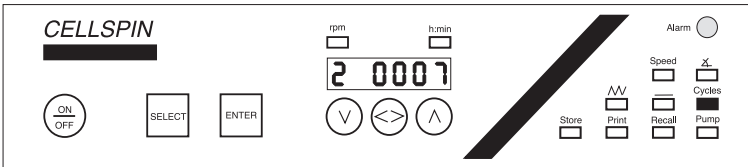
N.B.: If continuous running time has been entered, "Con" will appear in the display automatically in the mode CYCLES.
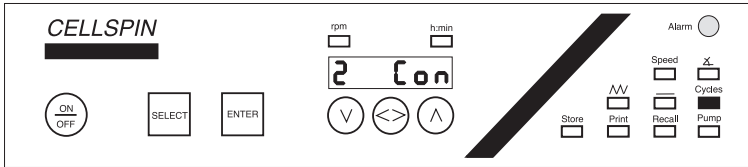
Setting the number of cycles:

☞ Press the "SELECT" key until the green light under "CYCLES" lights.
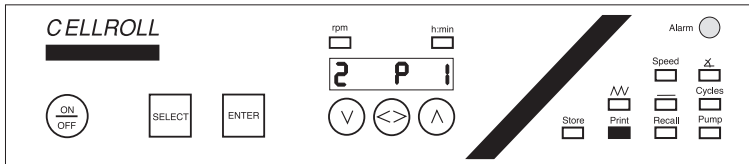
☞ Set the required number of cycles using keys "∨" or "∧".

PRINT - print-out and overview of program parameters

Options of the function PRINT:

- **Viewing stored programs - P1**
- **Print-out of protocols- P2**
- **Print-out of stored programs - P3**

Selecting options:

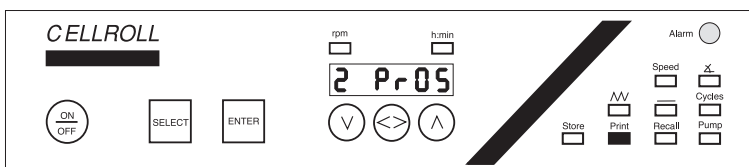☞ Press the "SELECT" key until the green light under "PRINT" lights. "P1" will appear in the display.

Keys "∨" and "∧" can be used to switch between options P1, P2 and P3.

Confirm the selected option by pressing the "ENTER" key.

P1 - Viewing stored programs:

In this option, the individual parameters of a stored program can be   viewed.

☞ Select option P1 using key "∨ " or "∧" and confirm by pressing the "ENTER" key.

☞ Enter the required program number between Pr. 01 and Pr. 10 using key "∨" or "∧".

☞ Press the "ENTER" key to confirm. The LED under "PRINT" and "SPEED" will light. The speed of the selected program will appear in the display.

The "SELECT" key can be used to call up the program parameters which than can be read off the display.

☞ Press the "SELECT" key until the green light under "PRINT" lights again.

At this point, either further programs can be viewed or the "PRINT" mode left.

a) To view further programs:

☞ Press the "ENTER" key. Select the required program number between Pr. 01 and Pr. 10. Use the "SELECT" key to view the required parameters.

b) To leave the "PRINT" mode:

☞ Press the "SELECT" key to move to the next required functions.

P2 - Print-out of protocol

The print interval specifies the intervals at which the parameters of an activated program are printed out.

☞ Select option P2 using keys "∨" or "∧" and confirm by pressing "ENTER". The display for time entry will appear.

☞ Press the "< >" key to activate the hours/minutes entry. Set the required printing interval using key "∨" or "∧" and confirm by pressing "ENTER". "P2" will reappear in the display.

Briefly press key "< >" to activate print-out of the protocol. "≡ P2" will appear at the right hand side of the display and the protocols will be printed out at the required intervals.
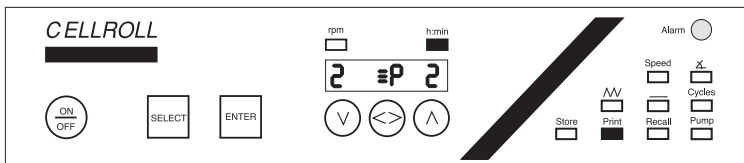
Repressing key "< >" deactivates the protocol mode and "P2" will reappear in the display.
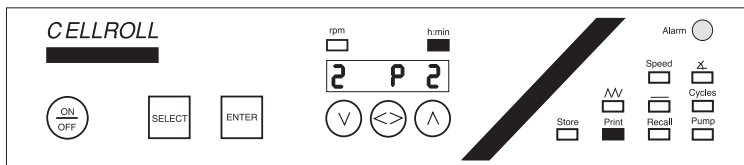
N.B.: Any changes in parameter during the running of a program are automatically and immediately noted on the print-out.

P3 - Print-out of stored programs:

In this option, all stored programs can be printed out. For each of the system components, i.e.

- CELLSPIN
- CELLROLL "Motor unit"
- CELLROLL "Motor unit *fast*"
- External device

there are 10 memories available for each; these are noted on the print-out.

N.B.: If two identical system components (e.g. 2 CELLROLLS, 2 CELLSPINS) have been connected, each will be allocated 5 memories.

☞ Select option P3 using key "∨" or "∧" and confirm by pressing "ENTER".
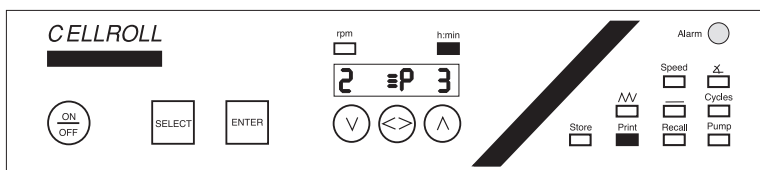
The appropriate data will then be transmitted immediately to the printer or PC connected.

Storing programs - "STORE" mode

For each of the connected system components, 10 memories (Pr. 01 to 10) are available for program storing.

N.B.: If two identical system components (e.g. two Cellrolls, two Cell-spins) have been connected, each will be allocated 5 memories.

In addition, one further memory is provided with the following function: In the case of power failure, all data of the current program for both outputs which have not been stored under "STORE" are stored in this memory. Once power has returned, the programs automatically continue.

☞ Once all of the parameters have been entered, press the "SELECT" key until the green light under "STORE" lights.
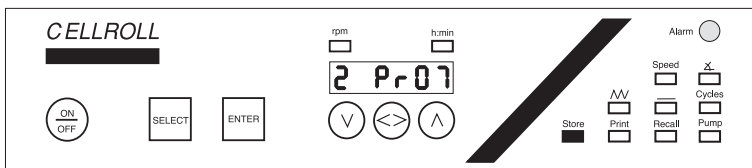
☞ Select a memory between 01 and 10 using key "∨" or "∧". Confirm the number by pressing "ENTER".

N.B.: Should another parameter have been stored under this particular number, it will be overwritten by the new parameter entries.

Calling-up programs - RECALL mode

☞ Press the "SELECT" key until the green light under "RECALL" lights.

☞ Set the required program number (Pr. 01 to Pr. 10) using keys "∨" or "∧".

☞ Press the "ENTER" key. An acoustic signal will be given three times in succession and the program will start.

After 120 sec., the current speed will appear in the display and the instrument will move into function "SPEED".

6. Troubleshooting

Problem	Probable cause	Remedial measure
CELLROLL or CELLSPIN control unit doesn't switch on by pressing the "ON/OFF" key	• Power interruption	• Check all connections between control unit, power supply and wall socket.
	• Faulty power supply	• Replace the power supply with a new one.
An error message appears: - Err 02	• Electronic unit disconnected	• Check the connection between control unit and device. Make sure that the screw tops are fastened when using a control cable. If this measure is unsuccessful, replace the control cable with a new one. Press "ENTER" to quit Err 02.
- Err 03	• Power failure	• A power interruption has appeared during a program run. Press "ENTER" to quit Err 03.
Printer doesn't work	• Printer disconnected	• Check power connection and connection between control unit and printer. You have to use a special Y-cable (art.-no.: 186 041)
	• Incorrect settings	• Make sure that a printer with a serial interface is connected. Settings: Baudrate: 2400 Parity: none Databits: 8 Startbit: 1 If you like to use a printer with a parallel interface you have to connect a serial/parallel converter additionally
	• No printing interval time entered/printer mode deactivated	• See manual
Selected program doesn't run	• Incorrect settings	• Check all program settings, make sure that the value of the entered speed is > "0".
Display shows indefinable characters or input data will not be accepted	• Line transient (e.g. by flash of lightning) • Data loss in random access memory • Software crash	RESET the control unit: - Connect the control unit to power. - Switch the unit off by pressing the "ON/OFF" key. - Press "∨" once until "—" appears while switching on Press "<>" twice Press "∧" three times till the display shows " _ _ _ _ _ _ " The "Reset" is finished automatically, the display will show "LL" for 2 seconds. Disconnect the control unit from power supply for a few seconds afterwards, then connect it again. **WARNING!** All stored programs are deleted after a RESET!

7. Guarantee/Cleaning

Guarantee

All instruments are guaranteed for 1 year.

Cleaning

Cleaning of the instruments

⚠️ Always switch off the instrument and disconnect it from the mains when carrying out maintenance/cleaning work.

To clean the instruments, use a cloth moistened with customary cleansing agents like soapy water, a 70 % ethanol solution or isopropanol. Do not spray directly on the instrument but use a cloth and wipe dry directly after cleaning. Never use acetone!.

8. Manufacturer and Service Contacts

Manufacturer:

INTEGRA Biosciences AG
CH-7205 Zizers
Switzerland
www.integra-biosciences.com
info@integra-biosciences.com

Customer service:

Please contact your local INTEGRA Biosciences representive.
To find out name and address of your local representive go to www.integra-biosciences.com.

Further information is available from info@integra-biosciences.com.

This operating instruction manual has the article number 183 411, version number V12.