Quantoom Biosciences

Your full-stack RNA partner

Ntensify® micro

User manual

UQTMP009A

Nivelles (Belgium)

Version 3.0

Proprietary and Confidential

ENGLISH

Your RNA manufacturing partner

Quantoom is on a mission to reinvent **RNA technologies to enable the rapid development of (sa)mRNA as a drug-modality** for life-changing RNA-based medicines reaching more patients worldwide, making the synthetic biology revolution a reality.

While others think about **10%, we aim for >10x improvement** that can completely transform the production of life-changing (sa)mRNA drugs.

Quantoom is your RNA manufacturing partner, dedicated to **accelerating and de-risking your RNA drug development journey**. By minimizing scale-up, time, and cost uncertainties — and maximizing your chances of success — our transformative N-Force toolbox empowers you from design to delivery.

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1. General Information

Company business name : Quantoom Biosciences
Address : Rue de la Maîtrise 11, 1400, Nivelles, Belgium
Fully authorized representative : José Castillo Machinery designation:

Ntensify® micro (UQTMP009A)

How to contact us:

customer.service@quantoom.com
complaint@quantoom.com
https://quantoom.com

The identification sticker of the **Ntensify® micro** is located at theback of the equipment.

Quantoom Biosciences

2. Process Overview

The **Ntensify®** product line enables seamless scalability from early drug discovery to very large RNA commercial production. The process allows seamless transition from small-scale R&D to large-scale GMP: Ensuring consistent quality throughout. The Micro is optimized for IVT with one-step purification, well documented Process Performances (2000+ exp, 100+ constructs). **Ntensify®** product line is construct-agnostic process, scalable from µg to multi-g scale, with ready-to-use mixes of reagents and GMP-ready for future clinical applications.

In addition, **Ntensify® micro** is a springboard to **Ntensify® midi** (up to 20 ml) with a capacity of construct screening from 1 to 96 (as of 100µL) and process settings can be tweaked.

2.1. Standard function

The **Ntensify® micro** is a compact platform designed to streamline and standardize the **Ntensify®** process at micro & midi-scale. Built for flexibility and ease of use, it enables users to perform high-quality RNA with minimal hands-on time and maximal reproducibility.
The system integrates key process steps—mixing, heating, and magnetic bead separation—into a single workflow, reducing the need for manual intervention and minimizing variability. It is optimized to work with **Quantoom**'s R&D reagents kit, ensuring consistency across runs and scalability with other systems.

2.2. List of required material

The **Ntensify** R&D Kit is an all-in-one solution containing pre-mixed ready-to-use reagents for the Ntensify process enabling the production of up to 100 mg of mRNA. It is designed for seamless integration and the kit leverages the same raw material as our GMP kit, supporting future clinical applications and ensuring process validation for reliable and reproducible results.

Depending on the chosen 96 well plate or 20 mL reaction mode, **Ntensify® micro** will require the same reagent R&D kit but different disposables.

2.3. mRNA mode

The **Ntensify® micro** contains two operating configurations:

- The 96 wells plate mode: which is particularly well-suited for screening, design of experiments (DOE), process development and small-scale mRNA production.
- The 20 ml reaction mode: offering a unique balance between scalability and resource efficiency, uses the same reactor as the **Ntensify®** midi enabling users to generate data that is highly translatable to GMP manufacturing.

2.3.1. mRNA Ntensify process 96 wells

The mRNA **Ntensify** process is a mode for 96 wells where the process is completely fine-tuned by **Quantoom**. Steps, key parameters, etc. are all set and cannot be changed.

2.3.2. mRNA Ntensify process 20 mL

The mRNA **Ntensify** process is a mode for 20 mL where the process is completely fine-tuned by Quantoom. Steps, key parameters, etc. are all set and cannot be changed.

2.3.3. mRNA Ntensify customized process 20 mL

The mRNA **Customized Ntensify** mode for 20 mL follows the process sequence developed by Quantoom but key parameters such as shaking speed, temperature and time can be set by the operator within a limit defined by Quantoom at steps such as premix, IVT , DNase and Quenching incubations. Steps sequence cannot be changed.

2.4. Manual mode

The manual mode does not follow any specific sequence. Key parameters such as shaking speed, temperature and time can be set by the operator within a limit defined by Quantoom.
This manual mode is available with 20 ml as well as 96 well configurations (i.e. in 50 ml tube and in 96 wells DSP plate).

Remark: the way for selecting each of other mode, configuration, process, and setpoints (where applicable) is described in Section 5.

3. Reagents and disposables

All the reagents that are required to synthesize a purified mRNA from linear DNA are available as ready-to-install mixes. They are manufactured to enable the implementation of an optimal RNA production process within the **Ntensify® micro**.

3.1. Provided reagents

MIX NUMBER	REAGENT	DESCRIPTION
Mix 1	Nucleotides	Set of ribonucleotides triphosphates, including for the co-transcriptional capping
Uridine	Nucleotides	Natural uridine and modified uridine
Mix 2	Enzymes	Mix of enzymes designed for RNA polymerization while preventing the formation of contaminants
Mix 3	Buffer	Buffer specifically designed to allow the RNA polymerase and other enzymes to work at maximal capacity while preventing the formation of contaminants
Mix 4	DNA removal	Enzymatic preparation designed for the removal of DNA after the IVT reaction
Mix 5	Quenching mix	Mix designed for the chemical quenching of the enzymatic reactions before purification
Mix 6	Purification mix	Mix of silica beads used in the purification step. The concentrations and quality criteria are designed to combine maximal performance and minimal waste generation
Mix BB	Binding Buffer	Buffer for beads conditioning (mix 6) before their application in the Ntensify process.
Ethanol	Ethanol	Ethanol stock used for the binding and washing steps during the purification of the RNA
WFI	Water	Water stock used throughout the entire process

Table 1 - Ntensify® micro reagents kit

The linear DNA template is supplied by the client and must be diluted to 0.5 mg/mL. Uridine should be mixed with Mix 1a according to the required reaction volume.

3.2. Self-sourced disposable and material

Ntensify® micro requires a list of off-the-shelf, commercially available single-use disposables that are not provided, as well as some standard laboratory equipment.

NAME	REFERENCE	SUPPLIER	QTY
Nunc™ 96-Well Polypropylene DeepWell™ Sample Processing & Storage Plates with Shared-Wall Technology	260252	ThermoFisher	3
Eppendorf PCR Film	30127781	Eppendorf	4
100 µL Disposable Tips - Non-filtered, Pure, Single Stack	30038611	Tecan	1
ep Dualfilter T.I.P.S.® PCR clean and sterile 0.1 – 10 µL M, 40 mm, medium gray, colorless tips	30078519	Eppendorf	1
Eppendorf Research® plus 8-channel 0.5 – 10 µL, medium gray, variable volume	3125000010	Eppendorf	2
ep Dualfilter T.I.P.S.® PCR clean and sterile 2 – 100 µL, 53 mm, yellow, colorless tips	30078543	Eppendorf	8
Eppendorf Research® plus 8-channel 10 – 100 µL, yellow, variable volume	3125000036	Eppendorf	1
Eppendorf Research® plus 8-channel 30 – 300 µL, orange, variable volume	3125000052	Eppendorf	1
ep Dualfilter T.I.P.S.® PCR clean and sterile 20 – 300 µL, 55 mm, orange, colorless tips	30078560	Eppendorf	13
Eppendorf® Centrifuge 5430	22620584	Eppendorf	1
Rotor A-2-MTP	22654403	Eppendorf	1
10 ml Reservoir Base, 10 Bases per Case	4306	Integra Biosciences	1
10 ml, Disposable Reservoirs, 30 Individually Sealed, Sterile, Polystyrene, SureFlo™ anti-sealing array	4371	Integra Biosciences	1
DNA LoBind® Tube 50ml screw cap	30122232	Eppendorf	1
Easypet® 3	4430000018	Eppendorf	1

NAME	REFERENCE	SUPPLIER	QTY
Eppendorf Serological Pipets sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic 10 mL, orange	30127722	Eppendorf	2
Eppendorf Serological Pipets sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic 25 mL, red	30127730	Eppendorf	2

Table 2 - Required disposables and material for 96 wells

NAME	REFERENCE	SUPPLIER	QTY
DNA LoBind® Tube 50ml screw cap	30122232	Eppendorf	2
ep Dualfilter T.I.P.S.® PCR clean and sterile 50 – 1,000 µL, 76 mm, blue, colorless tips	30078578	Eppendorf	1
Eppendorf Research® plus 1-channel 100 – 1,000 µL, blue, variable volume	3123000063	Tecan	1
Eppendorf Serological Pipets sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic 5 mL, blue	30127714	Eppendorf	1
Eppendorf Serological Pipets sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic 25 mL, red	30127730	Eppendorf	4
Eppendorf Serological Pipets sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic 50 mL, violet	30127749	Eppendorf	2
Eppendorf Serological Pipets sterile, pyrogen-, DNase-, RNase-, human and bacterial DNA-free. Non-cytotoxic 10 mL, orange	30127722	Eppendorf	8
Easypet® 3	4430000018	Eppendorf	1
Nalgene PETG Biotainer Bottle 125mL	3025-42	Thermo Fisher Scientific	1

Table 3 - Required disposables and materials for 20 mL configuration

The **Ntensify®micro** system is intended to be used in a standard R&D laboratory.
And it requires the use of standard laboratory equipment.

4. Equipment overview

4.1. Standard function

The **Ntensify® micro** is a compact platform designed to streamline and standardize the **Ntensify®** process at micro & midi-scale. Built for flexibility and ease of use, it enables users to perform high-quality RNA with minimal hands-on time and maximal reproducibility.

The system integrates key process steps - mixing, heating, and magnetic bead separation - into a single workflow, reducing the need for manual intervention and minimizing variability. It is optimized to work with **Quantoom**'s R&D reagents kit, ensuring consistency across runs and scalability with other systems.

4.2. Technical Data

POWER AND DATA SPECIFICATION		UNIT	VALUE
Optimal conditions for use	Temperatures	°C	20 to 25
	Humidity	% HR	20 to 80
	Protection Level	IP	IP 54 design
	External Influencing Factors Parameters	-	AA5 AD1 AE1 AF3 AG2 AH3 AK1 AL1 AM1 AN2 BA4 BB1 BC2 BD1 BE4 CA1 CB1
Materials of construction	Casing	-	Stainless steel painted
Dimensions	Footprint (W × D × H)	cm	38 x 32 x 21
	Weight (without accessories)	kg	~15
Power supply	Electrical supply	Vac	110 - 230
	Voltage range	Vac	±10%
	Rated Frequency	Hz	50 or 60
	Frequency range	Hz	±10%
	Maximum power	W	180

Table 4 - Technical data

4.3. Connecting cable and power supply

ELECTRICAL SUPPLY	230VAC – 50Hz 110VAC – 60Hz

Table 5 - Electrical specifications of the equipment

Depending on the country, the appropriate plug must be connected to the IEC connector located at the back of the equipment.

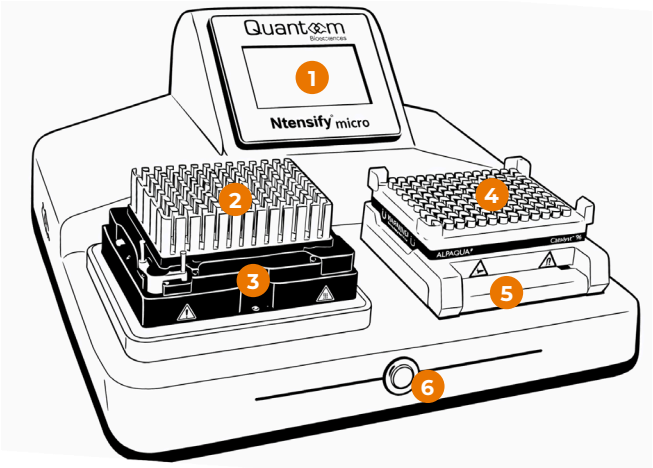
N. B. : It is strongly recommended to connect the equipment after a residual current circuit breaker.

4.4. Buttons

ID	NAME	FUNCTIONALITY
1	Main supply	Turns the system ON/OFF. Acts as an emergency button
2	Operating button	The light turns ON to invite the operator to press it to switch to next process step

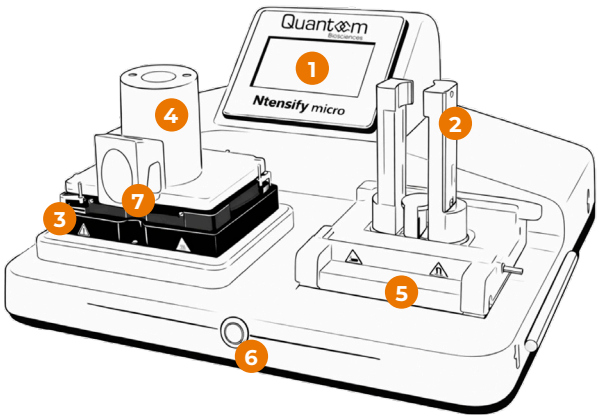
Table 6 - Functionalities of the buttons of the equipment

4.5. Equipment basic technical description



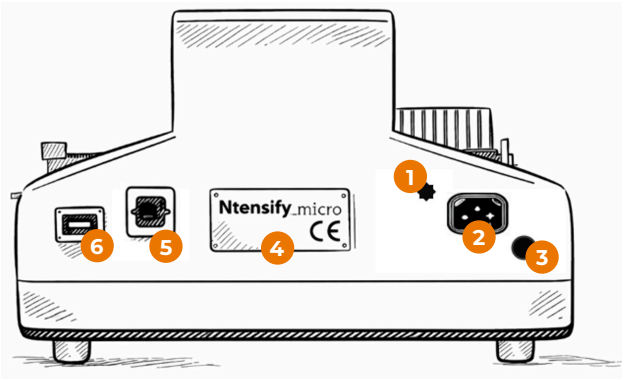
1. HMI
2. 96-well agitation accessory
3. Thermo-shaker
4. 96-well magnetization accessory
5. Inclination system
6. Operation button

Figure 1 - Ntensify® micro 96-well configuration



1. HMI
2. 20 mL magnetization accessory
3. Thermo-shaker
4. 20 mL agitation accessory
5. Inclination system
6. Operation button
7. Angular adaptor

Figure 2 - Ntensify® micro 20 ml configuration



1. Resettable circuit breaker
2. Plug connector
3. ON/OFF button
4. CE sticker
5. Ethernet connector
6. USB connector

Figure 3 - Ntensify® micro back view

- **The ON/OFF operation button** is lit when the button is functional and can be used for progressing in the process. When the button light is off, the command is done using the icons on the HMI.
- **The thermo-shaker** module has 2 functionalities: 3mm orbital shaking & heating.
- **The heating control** is foreseen for a SP range from 25.0°C to 55.0°C. It is strongly recommended to keep the room temperature of the BSC in the range 20.0 +- 1.0°C.
- **In the 20 ml configuration**, the shaking feature is foreseen for a range from 200 to 1000 rpm.
- **In the 96 configuration,** the shaking feature is foreseen for a range from 200 to 1700 rpm.
- **All Ntensify® process** steps can be observed on the HMI. The front button is foreseen to pass to the next step without accessing the HMI.
- **The inclination system** is foreseen to ease pipetting operations during the DSP phase.

4.6. Security advice

Internal safety rules and supplier recommendations must be respected when using cleaning or decontamination products.

We recommend wearing PPE, e.g., gloves, laboratory coat, hair, and beard net.

4.7. Equipment accessories

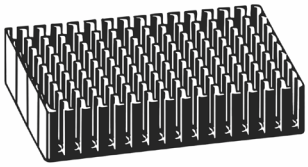
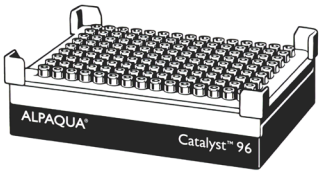
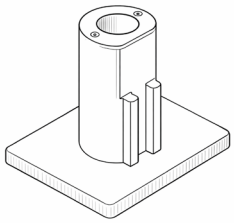
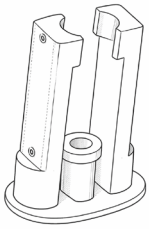
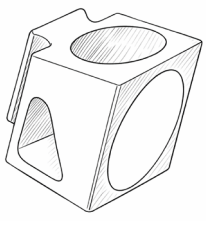
NAME	PHASE	CONFIGURATION	PICTURE
96-well agitation accessory	USP	96	
96-well magnetization accessory	DSP	96	
20 mL agitation accessory	USP	96 & 20 ml	
20 mL magnetization accessory	DSP	20 ml	
Angular adaptor	DSP	96 & 20 ml	

Table 7 - Equipment accessories

As shown below, the IVT accessories must be screwed on the thermos-shaker using the central screw and the screwdriver foreseen.

N. B.: Always make sure the accessory is properly screwed.

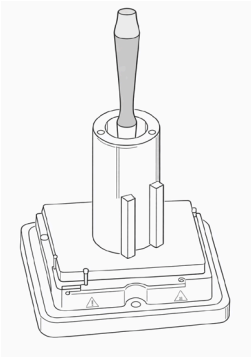


Figure 4 - 20 mL agitation accessory assembly

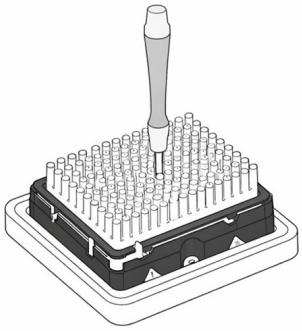


Figure 5 – 96 agitation accessory assembly

The DSP accessories must be slid in their own slot.

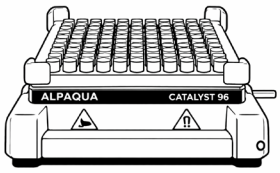


Figure 6 – 96-well magnetization accessory assembly

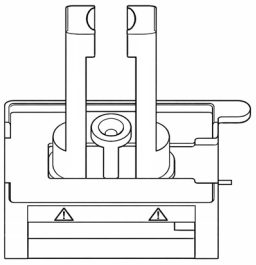


Figure 7 - 20 ml magnetization accessory assembly

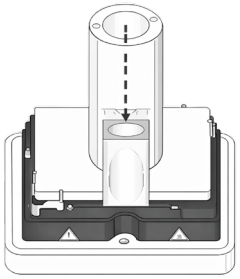


Figure 8 - Angular adaptor assembly

4.8. Recommendations for waste disposal after production run

Handling, decontamination, and elimination of waste and contaminated material must be in accordance with the applicable internal SOP, local and national regulations, directives, and laws.

5. Launching a production

Remark: The equipment must be placed on its 4 feet on a flat surface, for example: a bench, for vibrations and stability reasons.

The **Ntensify®micro** integrated software is designed for maximum usability and guidance, ensuring a seamless and error-free workflow. Its intuitive interface and step-by-step navigation provide clear instructions at every stage.

- User-friendly & intuitive – No technical expertise required, easy to operate.
- Step-by-step guidance – Each action is clearly defined before proceeding.
- Error-proof process – Eliminates mistakes and omissions by ensuring all steps are completed.
- Real-time progress tracking – Indicates the current step and the next action to take.
- No margin for error or oversight – The system prevents incorrect or skipped actions.

The operator has access to the main menu to name the protocol, add additional details and start the production.

The following screenshots will recap how to launch a production on **Ntensify®micro** depending on the mode, configuration and process chosen by the operator.

Figure 9 - Start screen of Ntensify® micro for selecting the process

5.1. Modes available

Ntensify® micro offers 2 modes:

Figure 10 - Mode selection interface

By selecting mRNA or manual mode, two configurations, i.e., 96-well or 20 ml are possible:

Figure 11 - Configuration selection interface

5.2. mRNA mode

5.2.1. Process available in 96-well

As a reminder, for the 96 wells process, the recommended disposable to use is the Nunc™ 96-Well Polypropylene DeepWell™ Sample Processing & Storage Plates with Shared-Wall Technology from ThermoFisher, reference 260252

In mRNA 96-well configuration, next following menu offers no choice: only mRNA 96-well (Ntensify process) can be selected.

Figure 12 - Process selection interface (mRNA 96 wells)

5.2.2. Processes available in 20 ml

As a reminder, for the 20 ml process, the recommended disposable to use is the DNA LoBind® Tube 50ml screw cap from Eppendorf, reference 30122232.

In mRNA 20 ml configuration, next following menu offers 2 choices: (i) mRNA 20 ml (Ntensify process) and (ii) mRNA 20 ml customized Ntensify process.

Figure 13 - Process selection interface (20 ml)

5.2.3. mRNA process for 96 wells and 20 ml

When selecting the mRNA process, the mRNA process corresponds to the mRNA **Ntensify** process developed by **Quantoom**.

This process is available in both 96-well (see Figure 12) and 20 ml (see Figure 13) configurations. The process is completely fine-tuned by **Quantoom**. Steps, key parameters, etc. are all set and cannot be changed by the operator. The process is automatized.
The process start and the operator can follow the automatized steps. At each step the operator can view the status and parameters of the step (see Figure 15); between steps when the operator must execute actions for pursuing the process, a message givng the recommendation appears (see Figure 16, as example).

Figure 15 - Screen during automatic mode

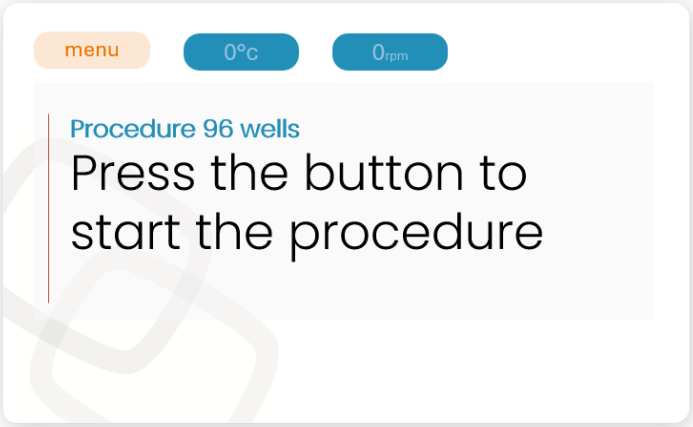


Figure 16 - Initiation of the procedure message

From starting up to the run is complete, the operator is guided by the messages.

5.2.4. mRNA customized Ntensify process 20 ml

Figure 17 –mRNA customized Ntensify process selection interface (only in 20 ml configuration)

The mRNA Customized Ntensify mode for 20 ml follows the **Ntensify** process steps established by **Quantoom**. In this mode, while the overall workflow is fixed and cannot be altered, operators can adjust key parameters—such as shaking speed, temperature, and duration—within predefined limits set by **Quantoom** at specific key process steps, including premix, IVT, DNAse and quenching incubations (Table 12 - Parameters limits 20 ml configuration) (see Figure 18, Figure 19, Figure 20 and Figure 21). Each sequence can be differently and independently configured. Once the setpoints are chosen and recorded, the process can be started, and the operator is guided throughout the entire process.

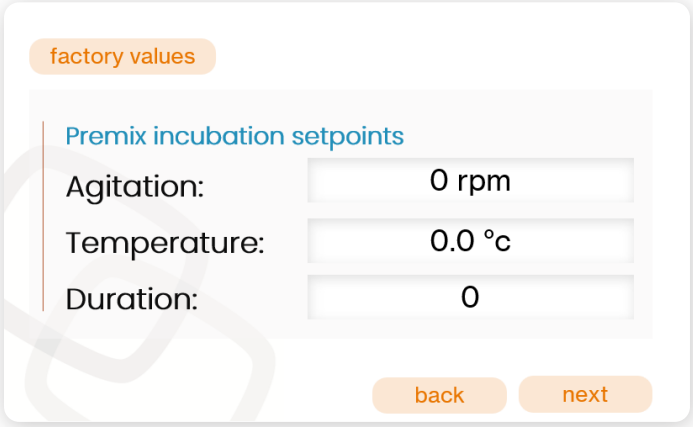


Figure 18 - Configuration of Premix incubation setpoints

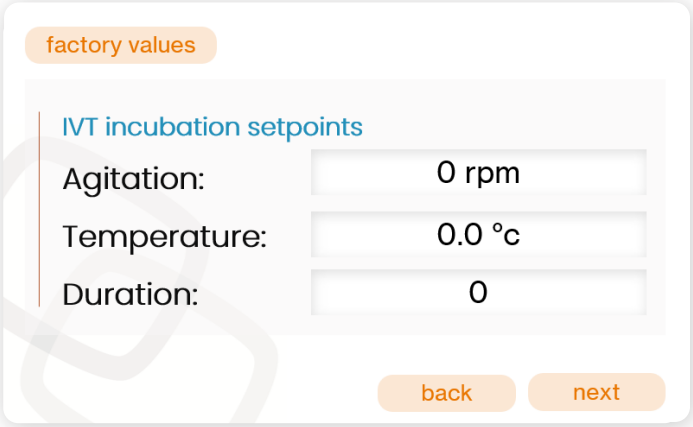


Figure 19 - Configuration of IVT incubation setpoints

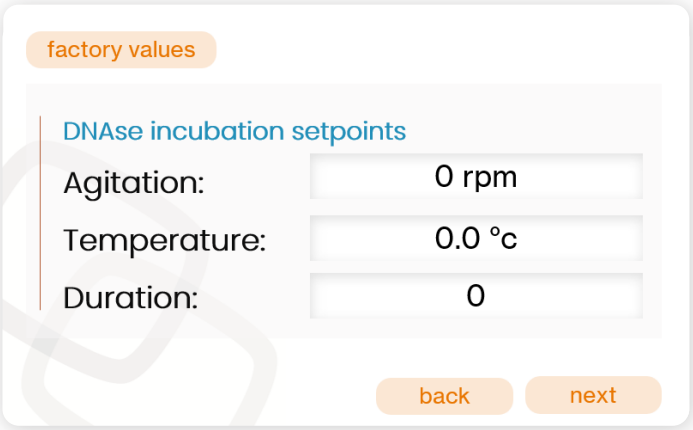


Figure 20 - Configuration of DNase incubation setpoints

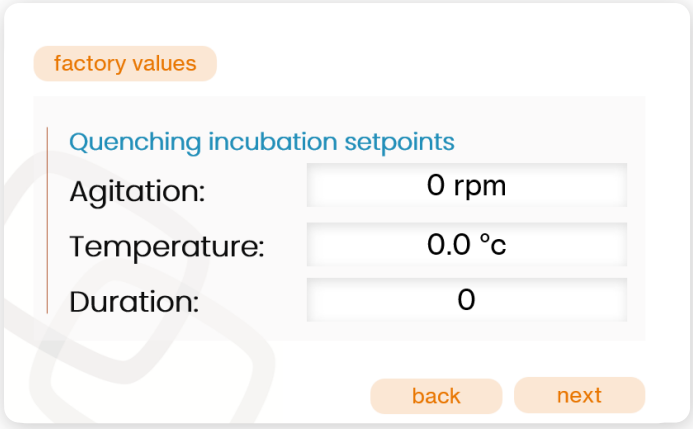


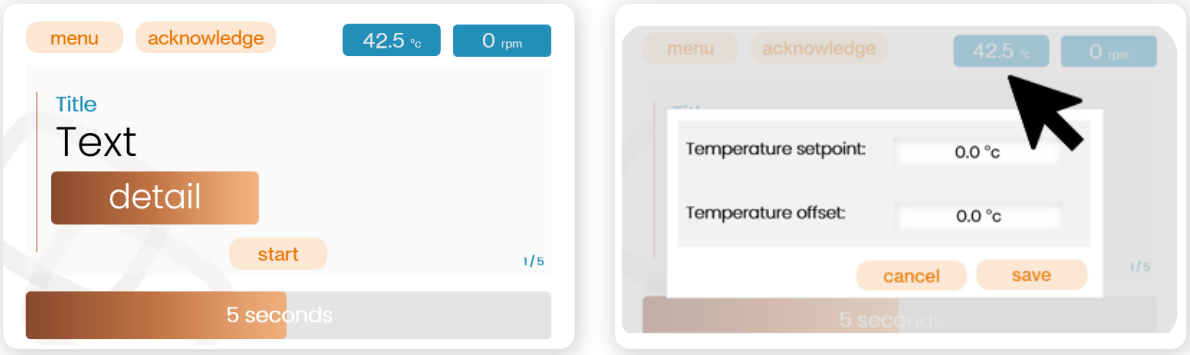
Figure 21 - Configuration of Quenching incubation setpoints

5.3. Manual mode

5.3.1. Manual mode 96 wells and 20 ml

Figure 22 – Manual mode

The manual mode does not adhere to a predefined sequence. Operators have the flexibility to set key parameters such as shaking speed, temperature, and time within the limits specified by Quantoom. As per mRNA mode 2 configurations are available (see Figure 11).



By touching the blue icons,
the screen allow heating and shaking modification.

Figure 23 - Screen of the Manual mode

5.4. Setting

The **Ntensify® micro** can be configured following those instructions: select menu icon to see the following screen. Select settings.
On the next screen displayed, the buzzer can be made available or muted.
And a virtual button can be enable meaning that an icon (acknowledge) will appear on the screens during the processes and can be used rather than the operational button (see picture 8) for progressing in the processes.

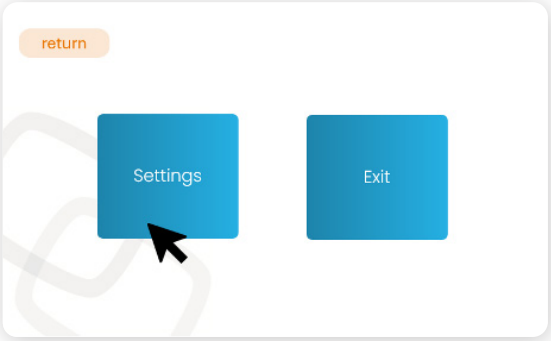


Figure 26 - Settings procedure interface

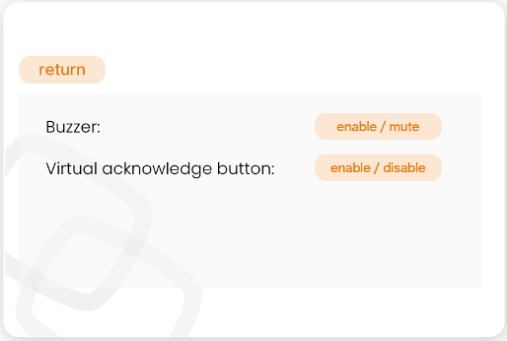


Figure 27 - Alarm management interface

5.5. How to stop a running procedure

Ntensify® micro process can be stopped following those instructions: select menu icon (Figure 26 - Settings procedure interface). Select exit and confirm stopping the process. In this case the process is definitively stopped (cannot be relaunched).

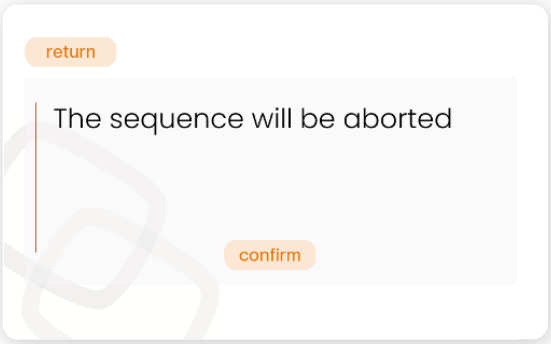


Figure 28 - Procedure interruption confirmation prompt

6. Safety notice

6.1. General safety information

This equipment must be operated as described in this manual. The user manual is intended for the trained staff only. To operate this system, the staff must be trained.
The following instructions and explanations must be followed during the installation, the commissioning of the components, and the use of the equipment. The staff responsible must ensure that the application or use of the equipment satisfies all the requirements for safety, including all the relevant laws, regulations, guidelines, and standards.

Please refer to **Quantoom** Biosciences' catalog for more information regarding both consumables and reagents.

OPERATOR / OWNER	• The operator knows how to use the system and its associated process. The operator is aware of the potential dangers while using the system and can prevent them from happening and can operate the equipment, follow recipes, and view alarm alerts (but does not have access to the alarm menu). • The operator has been trained on this system. • The operator is aware of the potential dangers while using the system and can prevent them from happening and can operate the equipment, follow and modify recipes. • The system owner is accountable for providing the training covering Health and Safety rules to follow.

Table 8 - Capacities on Ntensify® micro

6.2. Disclaimer

The documentation has been prepared with care. If it contains technical or editorial errors, we retain the right to make alterations at any time and without warning.

Due to ongoing product development, the illustrations shown are provided as examples only and are not contractually binding. Actual consumables, reagents, and configurations may differ from those depicted.

6.3. General warnings

In case of dysfunction, immediately stop the system and request appropriately trained staff or Quantoom Biosciences servicing for advice or if needed repair.

When installing the equipment, customers based in the European Union (EU) must comply with local

and European standards for the integration and use of work equipment. Outside the EU, they must comply with local standards and may be guided by these European directives.

And when using and/or dismantling equipment, customers based in the European Union (EU) must comply with local and European accident prevention and environmental protection standards. Outside the EU, they must comply with local accident prevention and environmental protection standards and may be guided by these European directives.

Follow the up-to-date safety information for operating this system and its accessories.

6.4. Equipment damage and misuse

This equipment must be operated as described in this manual. Any deviation from the instructions voids the warranty.

Please read the entire user manual before attempting to use this equipment. If operational guidelines are not followed, equipment damage and severe personal injuries can occur. **Quantoom** Biosciences declines responsibility when consumables and/ or reagents used in the equipment are from another supplier than **Quantoom** Biosciences.

Do not use this equipment in a hazardous atmosphere or with hazardous materials for which the equipment was not designed. The manufacturer is not responsible for any damage to this equipment that may result from the use of an accessory that it did not manufacture and specify for this purpose.

All users on this system must be trained as described in the table written in General safety information/ instructions paragraph above.

Only authorized **Quantoom** Biosciences staff with the appropriate tool can operate on the electrical panel due to electrical shock risks.

6.5. Alarms

The Alarm List is available in Appendix 8.1.

6.6. Decommissioning

Do not discard the equipment or any spare part in the regular garbage.
Please, dismantle, scrap, and decommission it according to the local laws.

6.7. Transporting, assembling, installation, dismantling

For transportation, dismantling, and re-assembly, please contact **Quantoom** Biosciences.

Quantoom Biosciences is responsible for the initial assembly.

Afterwards, the responsibility is transferred to the equipment owner for dismantling, transporting, re-assembling, and adjusting.

Important!

The owner must contact **Quantoom** Biosciences for the maintenance, including the preventive maintenance and for protective measures. This also includes the replacement of fuses.

The **Ntensify® micro** equipment is light enough to be carried by two operators. The design of the casing allows the operators to lift it by the sides.

The equipment must be placed on its 4 feet on a flat surface, for example: a bench, for vibrations and stability reasons.

It is recommended to place the system in a laminar flow during the processes but not to place the systems in a corner to optimize as much as possible the natural cooling of the systems.

6.8. Danger and personal injury hazards

SYMBOL	RISK DESCRIPTION	RISK ORIGIN
	Crushing of hands/Danger of crush injuries	Hinge system
	Hot surface	Thermo-shaker
	General warning sign	Thermo-shaker
	Magnetic field	Magnetic accessories

Table 9 - Danger and personal injury hazards

6.9. Precautionary for using reagents and cleaning products

The operator should be trained and aware of the risks before using the products listed below, by reading their associated MSDSs and wearing appropriate PPE. Using different products than listed below might damage the equipment surfaces.

RECOMMENDED REAGENT AND PRODUCTS	ASSOCIATED RISKS
ETHANOL	 • Hazard statement(s) • H225 Highly flammable liquid and vapor. • H319 Causes serious eye irritation. • H351 Suspected of causing cancer if inhaled. • H371 May cause damage to organs (Eyes, Central nervous system). • Precautionary statement(s) • P202 Do not handle until all safety precautions have been read and understood. • P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. • P233 Keep container tightly closed. • P240 Ground and bond container and receiving equipment. • P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. • Remove contact lenses, if present and easy to do. Continue rinsing. • P308 + P311 IF exposed or concerned: Call a POISON CENTER/ doctor.
ISOPROPYL ALCOHOL (IPA) ™	 • Hazard statement(s) • H225 Highly flammable liquid and vapor. • H319 Causes serious eye irritation. • H336 May cause drowsiness or dizziness. • Precautionary statement(s) • P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. • P233 Keep container tightly closed. • P240 Ground and bond container and receiving equipment. • P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment. • P242 Use non-sparking tools. • P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. • Remove contact lenses, if present and easy to do. Continue rinsing.
RnaseZAP ™	• No physical or health hazards reported

Table 10 - Hazards and precautions associated with reagents and cleaning products

Pay attention, Quantoom Biosciences declines responsibility when other products than specified in the above table are used to clean the equipment.

7. Warranty

Repairs or adjustments to the equipment should only be made by **Quantoom** Biosciences. Non-routine maintenance performed by unqualified personnel or installation of unauthorized parts could cause personal injury or result in damage and loss of warranty.

Quantoom Biosciences declines responsibility in case of any misuses of the equipment.

Never move the equipment whilst it operates and/ or consumables are placed inside.

Quantoom Biosciences makes no warranty with respect to components or accessories not supplied by them. In the event of a defect in any such component or accessory, **Quantoom** Biosciences will give reasonable assistance to the customer in obtaining the manufacturer's own warranty.

Any product claimed to be defective, must, if required by **Quantoom** Biosciences, be returned to the factory, properly decontaminated of any chemical or biological, material, transportation charges prepaid, and will be returned to the customer with the transportation charges unless the product is found to be defective.

Quantoom Biosciences shall be released from all obligations under all warranties, either expressed or implied, if any product covered hereby is repaired or modified by persons other than its own authorized service personnel, unless such repair by others is made with the written consent of **Quantoom** Biosciences.

8. Definition and abbreviations list

8.1. Definition

WORD	MEANING
N/A	N/A

8.2. Abbreviations

ABBREVIATION	MEANING
DSP	DownStream Processing
IVT	In Vitro Transcription
IPA	Isopropyl Alcohol
mRNA	messenger RiboNucleic Acid
N/A	Not Applicable
PPE	Personal Protective Equipment
RNA	RiboNucleic Acid
UQTM	Univercells Quantoom
USP	UpStream Processing
BSC	BioSafety Cabinet
PID	Proportional – Integrative - Derivative
MV	Measured Value
SP	Setpoint

9. Appendix

9.1. Alarm list

ID	TITLE	SEVERITY	COMPONENT	ENABLED	CONDITION	TON	TOFF	MUTED BY	EFFECT	MESSAGE
1	Communication failure	Alarm	CM_HeaterShaker	Yes	5 seconds timeout	0s	0s	n/a	procedure -> stop()	PML v1.0 / R00 P0037
2	General failure	Alarm	CM_HeaterShaker	Yes	Device internal fault	0s	0s	ID #1	procedure -> stop()	PML v1.0 / R00 P0038
3	Temperature_HH_LL	Alarm	Procedure 20 ml mRNA Procedure 96 wells mRNA	Yes	Temperature - setpoint > 2.0 & Q_instrument heating without control loop	30s	5s	ID #1 ID #2	procedure -> stop()	PML v1.0 / R00 P0036
4	Temperature_H_L	Warning	Procedure 20 ml mRNA Procedure 96 wells mRNA	Yes	Temperature - setpoint > 1.0 & Q_instrument heating without control loop	30s	5s	ID #1 ID #2 ID #4	n/a	PML v1.0 / R00 P0035
5	Agitation_HH_LL	Alarm	Procedure 20 ml mRNA Procedure 96 wells mRNA	Yes	Agitation < setpoint * 1.2 Agitation > setpoint * 0.8	30s	5s	ID #1 ID #2	procedure -> stop()	PML v1.0 / R00 P0039
6	Incubation_IVT_ Timeout	Alarm	Procedure 20 ml mRNA Procedure 96 wells mRNA	Yes	Instruction after IVT incubation is running	900s	0s	n/a	procedure -> pause()	PML v1.0 / R00 P0033
7	Incubation_DNAse_ Timeout	Alarm	Procedure 20 ml mRNA Procedure 96 wells mRNA	Yes	Instruction after DNAse incubation is running	900s	0s	n/a	procedure -> pause()	PML v1.0 / R00 P0034

Table 11 - Alarm list

9.2. Parameters limits

ID	NAME	INITIAL VALUE	MIN. VALUE	MAX. VALUE	UNIT
1	Temperature_Premix	42.5	25.0	55.0	°C
2	Temperature_IVT	42.5	25.0	55.0	°C
3	Temperature DNASE	42.5	25.0	55.0	°C
4	Temperature_Quenching	42.5	25.0	55.0	°C
5	Speed_incubation_Premix	400	0/200	600	rpm
6	Speed_incubation_IVT	400	0/200	600	rpm
7	Speed_incubation_DNAse	400	0/200	600	rpm
8	Speed_incubation_Quenching	400	0/200	600	rpm
9	Duration_incubation_Premix	T#900S	0	28800	second
10	Duration_incubation_IVT	T#4500S	0	28800	second
11	Duration_incubation_DNAse	T#1800S	0	28800	second
12	Duration_incubation_Quenching	T#900S	0	28800	second

Table 12 - Parameters limits 20 ml configuration

ID	NAME	INITIAL VALUE	MIN. VALUE	MAX. VALUE	UNIT
1	Temperature_IVT	42.5	25.0	55.0	°C
2	Temperature_DNAse	42.5	25.0	55.0	°C
3	Temperature_Quenching	42.5	25.0	55.0	°C
4	Speed_incubation_IVT	800	200	1700	rpm
5	Speed_incubation_DNAse	800	200	1700	rpm
6	Speed_incubation_Quenching	800	200	1700	rpm
7	Duration_incubation_IVT	T#4500S	0	28800	second
8	Duration_incubation_DNAse	T#1800S	0	28800	second
9	Duration_incubation_Quenching	T#900S	0	28800	second
10	Duration_cooling	T#1200S	0	28800	second

Table 13 - Parameters limits 96 wells configuration

Notes

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