User Manual

Robotic Autosampler Integrable System

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Preface

This manual is a guide for using the Robotic Autosampler (RA-I) Integrable System integrated with a Prometheus Panta. It instructs first-time users on how to use the RA-I system and serves as a reference for experienced users. For detailed information on how to use your Prometheus instrument, please refer to the corresponding user manual.

Before initializing the RA-I system, please read this instruction manual carefully, and make sure that the contents are fully understood. This manual should be easily accessible to the operator at all times during instrument operation. When not using the instrument, keep this manual in a safe place. If this manual becomes lost, order a replacement from NanoTemper Technologies GmbH.

Notices

1. NanoTemper Technologies shall not be held liable, either directly or indirectly, for any consequential damage incurred as a result of product use.
2. Prohibitions on the use of NanoTemper Technologies software:
    - Copying software for other than backup
    - Transfer or licensing of the right to use software to a third party
    - Disclosure of confidential information regarding software
    - Modification of software
    - Use of software on multiple workstations, network terminals, or by other methods 3. The contents of this manual are subject to change without notice for product improvement.
4. This manual is considered complete and accurate at publication.
5. This manual does not guarantee the validity of any patent rights or other rights.
6. If a NanoTemper Technologies software program has failed causing an error or improper operation, this may be caused by a conflict from another program operating on the computer. In this case, take corrective action by uninstalling the conflicting product(s).
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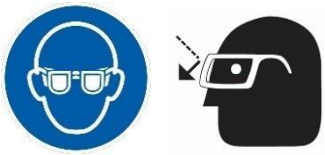
1. Safety Considerations

1.1. General Information and Safety Symbols

To ensure operation safety, this instrument must be operated correctly. Carefully read the following explanations to fully understand all safety precautions in this manual before operating the instrument. Please take a moment to understand what the signal words **WARNING!, CAUTION** and **NOTE** mean in this manual.

WARNING!	A **WARNING!** indicates a potentially hazardous situation which, if not avoided, may result in serious injury or even death.
CAUTION	A **CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. **CAUTION** may also be used to alert against damaging the equipment or the instrument. Do not proceed beyond a **WARNING!** or **CAUTION** notice until you understand the hazardous conditions and have taken appropriate steps.
NOTE	A **NOTE** provides additional information to help the operator achieve optimal instrument and assay performance.

Read user manual label. This label indicates that you have to read the manual before using the system. This label is positioned at the back of the device.



Warning symbol. This symbol indicates that it is mandatory to wear safety goggles when operating the system. The label is positioned on the door of the enclosure.

Warning symbol. This symbol indicates a surface that can heat up and cause burn injuries. This warning label is positioned on the sample tray.

Warning symbol. This symbol indicates moving parts that pose a risk of injuring hands and fingers. This warning label is positioned on the robotic arm.

It is important to choose a suitable location in the laboratory that provides sufficient space and meets all requirements. Please refer to the instrument dimensions and the requirements listed below.

The Robotic Autosampler and Prometheus instrument must not be exposed to unusual temperature variations, such as by direct sunlight, near a window, heating or air-conditioning duct. Avoid vibrations from vacuum pumps, centrifuges, electric motors, processing equipment and machine tools. Avoid strong magnetic fields and sources of high frequency as well as dust and corrosive gas.

Choose an area of floor that is suitably level and that can carry the total weight of the system.

1.2. Safety Instructions

Always use the RA-I system according to the instructions in this user manual. If the system is used in ways not specified in this user manual, the safety precautions provided by NanoTemper Technologies may not be effective as intended.

Always use the correct consumables (see 5.2.4) to ensure that the system works as intended.

1.2.1. General

WARNING! Operate the system and all its components only with the provided external power supplies. Only use the provided cables and plugs. Failure to comply may result in a risk of electric shock and fire.

WARNING! The system may only be plugged in to an outlet that is properly installed and grounded in accordance with all local codes and ordinances. Improper installation of the grounding plug can result in a risk of electric shock and fire.

CAUTION The system must be installed in a way that does not hinder access to the external power supplies and their power plugs.

CAUTION Connect the system power supplies in a way that avoids tripping hazards.

CAUTION Do not use extension cords. Damaged cords, plugs or cables need to be replaced immediately. Failure to comply may result in a risk of personal injury or damage to the instrument.

CAUTION Only NanoTemper Technologies staff may service the system and all its components. Power switches must be switched off and power cords unplugged before the instrument is serviced, unless instructed otherwise.

CAUTION Moving parts within the system can pinch or injure hands or fingers. Do not touch or reach into the system while parts are moving.

CAUTION Use only certified cables and plugs.

1.2.2. Prometheus Panta

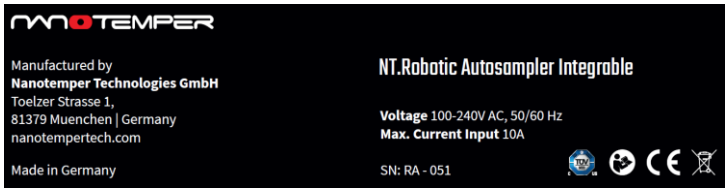
Refer to safety instructions included in your Prometheus Panta user manual.

1.2.3. Robotic Autosampler

WARNING! Glass capillaries can burst if handled improperly by the robotic arm, or in the event of a collision and subsequent closing of the robotic arm gripper. Glass splinters can injure eyes and skin. Wear appropriate safety goggles when operating the Robotic Autosampler Integrable.

WARNING! The robotic arm has a release button located on the underside of the shoulder joint. Pushing this button will cause the robotic arm to release all joints and drop down. The weight of the robotic arm can injure hands and fingers and damage RA-I components. Do not push this button unless necessary. If you do push this button, be careful to catch the robotic arm to prevent it from falling. Be careful not to injure your hand or fingers.

WARNING! The robotic autosampler integrable does not come with a protective enclosure. The integrating user is responsible for providing housing and protecting the user from any mechanical harms such as crushing, pinching, and poking. The system may not be operated until these safety features are in place and have been evaluated to be safe. Nanotemper is not responsible for any harm done by the system as a result of any mechanical interaction with the user.



Identification label. This label is positioned at the rear of the robotic arm.

2. Regulatory Statement

The Robotic Autosampler Integrable as a complete system is certified according the following safety and electromagnetic standards:

- IEC 61010-1:2010/AMD1:2016 Safety requirements for electrical equipment for measurement, control and laboratory use. Part 1 General Requirements
- IEC 61010-2-081:2019 Safety requirements for electrical equipment for measurement, control and laboratory use. Part 2-081: Particular requirements for automatic and semi-automatic laboratory equipment for analysis and other purposes.

The individual components of the system, for example the Panta or the robotic arm, are certified according to additional standards and regulations. For more information, please refer to the respective component's user manual.

3. System Specifications

3.1. Dimensions

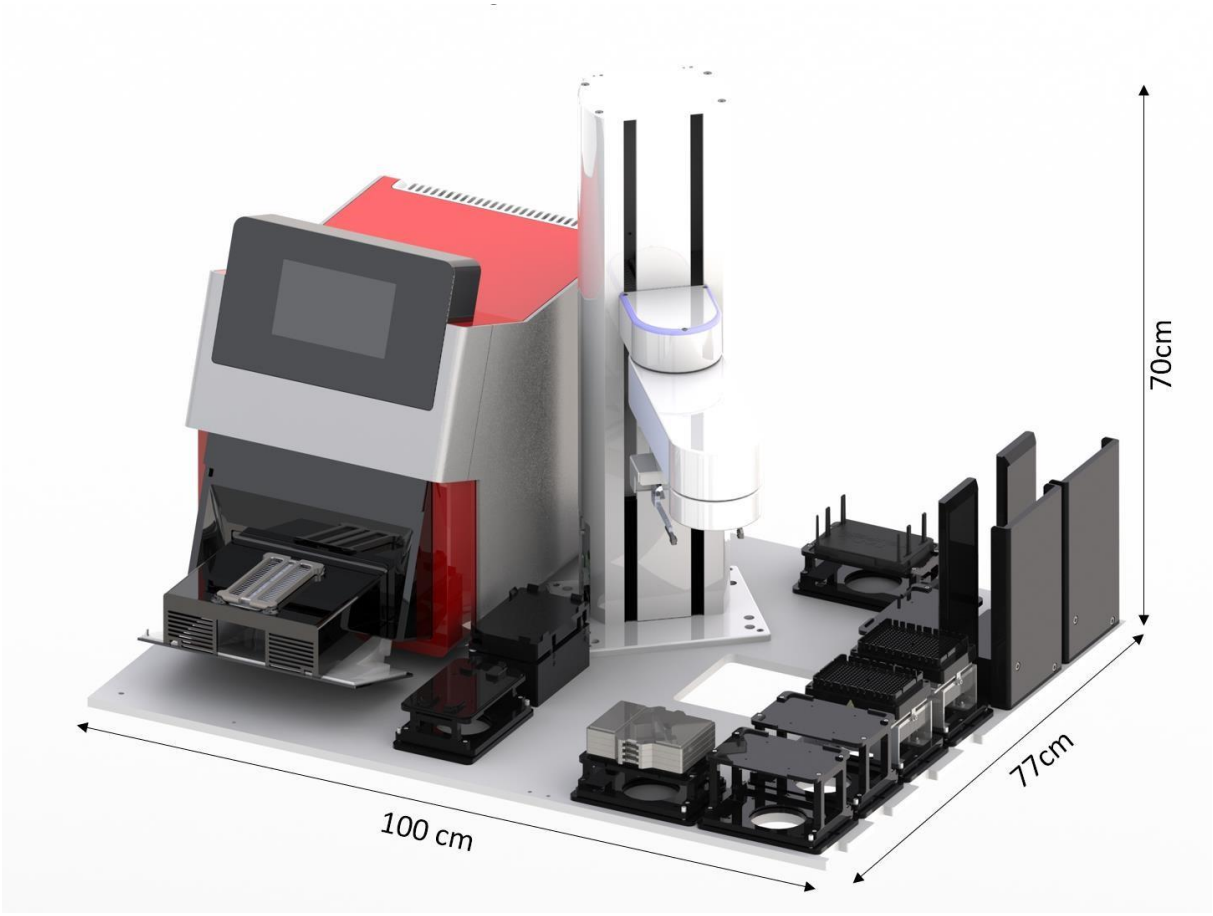


Figure 1: The dimensions of the RA integrable system.

3.2. Technical specifications and operating conditions

Electrical specifications			
Input voltage	100 VAC (-10%) to 240 VAC (+10%) 90 VAC to 264 VAC		
Input frequency	50 / 60 Hz		
Electrical input current	10 A		
Overvoltage category	2		
	Output power supply	Maximum power consumption	Inrush current (230VAC / cool start)
Prometheus Panta	24 VDC, 11.67 A max	230 VA	120 A
Robotic Autosampler	-	200 VA	100 A
Tilting Unit	24 VDC, 3.0 A max	25 VA	20 A
Control PC	-	150 VA	50 A
Plate Temperature Control (optional)	-	650 VA	100 A
Other specifications			
Weight	225 kg max		
Pollution degree	2		
Environmental conditions			
Operating temperature range	15°C to 30°C (indoor use only)		
Relative humidity	0% to 80%, noncondensing		
Operating altitude	max 2000 m		
Noise	< 65dB(A)		

The system should be located within easy reach of a grounded standard electrical outlet. The RA-I is provided with fuse protected, switchable power strips. The standard configuration requires 5 sockets; an additional socket is required if the configuration contains the optional Plate Temperature Control.

The line disconnector needs to be accessible at any time.

Please provide a suitable trash can (maximum height 50 cm).

4. Limited Warranty

Products sold by NanoTemper Technologies, unless otherwise specified, are warrantied to be free of defects in materials and workmanship for a period of one year from the date of installation. If any defects in the product are found during this warranty period, NanoTemper Technologies will repair or replace the defective part(s) or product free of charge.

THIS WARRANTY DOES NOT APPLY TO DEFECTS RESULTING FROM THE FOLLOWING:

1. IMPROPER OR INADEQUATE INSTALLATION.
2. IMPROPER OR INADEQUATE OPERATION, MAINTENANCE, ADJUSTMENT OR CALIBRATION.
3. UNAUTHORIZED MODIFICATION OR MISUSE.
4. USE OF UNAUTHORIZED CAPILLARIES AND CAPILLARY TRAYS.
5. USE OF CONSUMABLES, DISPOSABLES AND PARTS NOT SUPPLIED BY AN AUTHORIZED NANOTEMPER DISTRIBUTOR.
6. CORROSION DUE TO THE USE OF IMPROPER SOLVENTS, SAMPLES, OR DUE TO SURROUNDING GASES.
7. ACCIDENTS BEYOND NANOTEMPER'S CONTROL, INCLUDING NATURAL DISASTERS.

This warranty does not cover consumables like capillaries, reagents, labeling kits and the like.

The warranty for all parts supplied and repairs provided under this warranty expires on the warranty expiration date of the original product. For inquiries concerning repair service, contact NanoTemper Technologies after confirming the model and serial number of your NanoTemper Technologies instrument.

5. Robotic Autosampler Integrable System (RA-I)

5.1. General

The Robotic Autosampler Integrable (NT.RA-I) in combination with a Prometheus instrument is a fully automated platform for high-throughput protein stability measurements with minimal user hands-on time. This user manual covers the RA-I system, its use and dedicated software packages. For information on your Prometheus instrument and its measurement technologies, please consult the respective user manual. For more details on the robotic arm please refer to the manual by the robotic arm manufacturer (Precise Automation PreciseFlex 400 Sample Handler).

5.1.1. Setup and Installation

The RA-I system may only be set up, installed, and taught by trained NanoTemper Technologies staff. During installation, the teachpoints (positions) listed in 5.2 are taught to the robotic arm. If you notice a misalignment that requires re-teaching, please contact your NanoTemper Technologies representative for assistance. A suitable table or positioning structure is required to facilitate a successful installation. See 5.2.1 for details.

5.1.2. What's in the Box

RA-I system component	Description
Desktop PC with screen, keyboard, and mouse	The screen can be mounted or sit on a provided stand
Robotic arm	PreciseFlex 400 Sample Handler
Teaching jig	For robot teaching purposes
Chip container storage shelf	For storing an open capillary chip container during measurements
Chip container lid storage shelf	For storing the lid of the open capillary chip container during measurements
2 stackers	For up to 4 capillary chip containers (up to 64 capillary chips) each
4 storage shelves for microtiter plates	For storing assay plates during measurements
4 microtiter plate lids	Steel lids for covering assay plates during measurements

Storage shelf for microtiter plate lids	For storing unused plate lids
Storage shelf for the Prometheus capillary lid	For storing the Prometheus capillary lid during sample loading. The bottom shelf can also be used to store the teaching jig when not in use.
Tilting Unit	Holds the assay plate for sample loading
Trash can	To position below cut-out in table. Garbage bags are not included but recommended.
2 power supplies and associated cables	For the Prometheus instrument and Tilting Unit
Separate power cables	For connecting the robotic arm to power and the safety lock mechanism of the enclosure
2 network cables	For connecting the PC to the robotic arm, and the PC to the Prometheus Series Instrument
USB cable	For connecting the Tilting Unit to the PC
2 Multi-outlet power strips	Fuse protected (10 A) and switchable
Inheco Multi TEC Control	Thermoelectric Cooler and Heater to control Microtiter-Plate temperature

5.2. Configuration and Teachpoints

During installation, the teachpoints (positions) listed here are taught to the robotic arm. If you notice a misalignment that requires re-teaching, please contact your NanoTemper Technologies representative for assistance.

The recommended RA-I layout , its components, and associated teachpoints are illustrated in Figure 3.

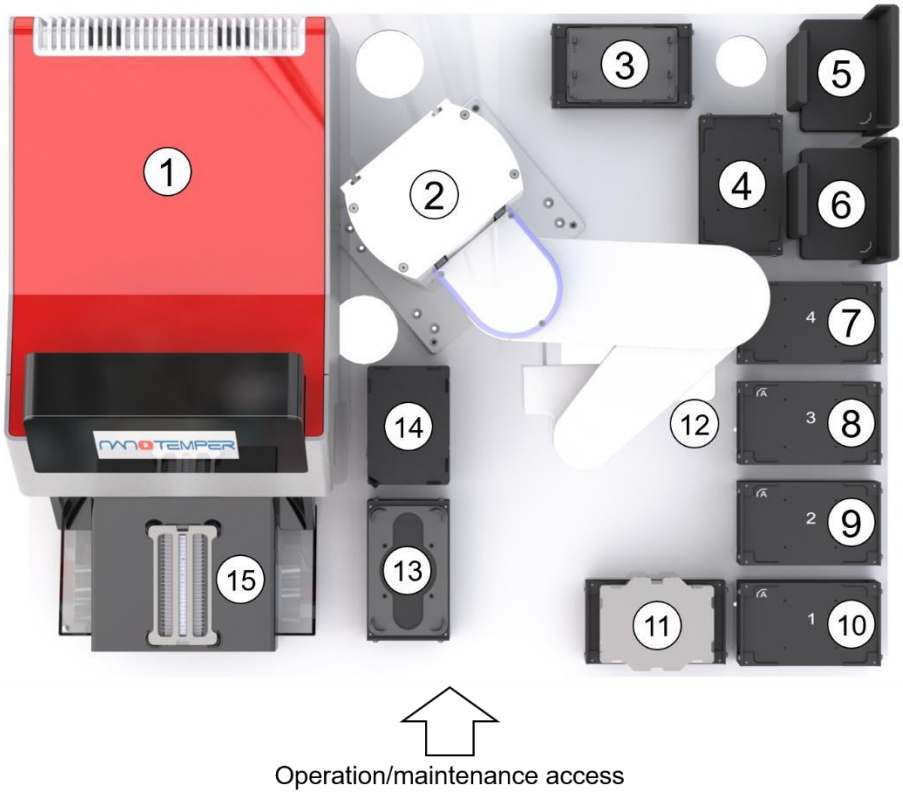


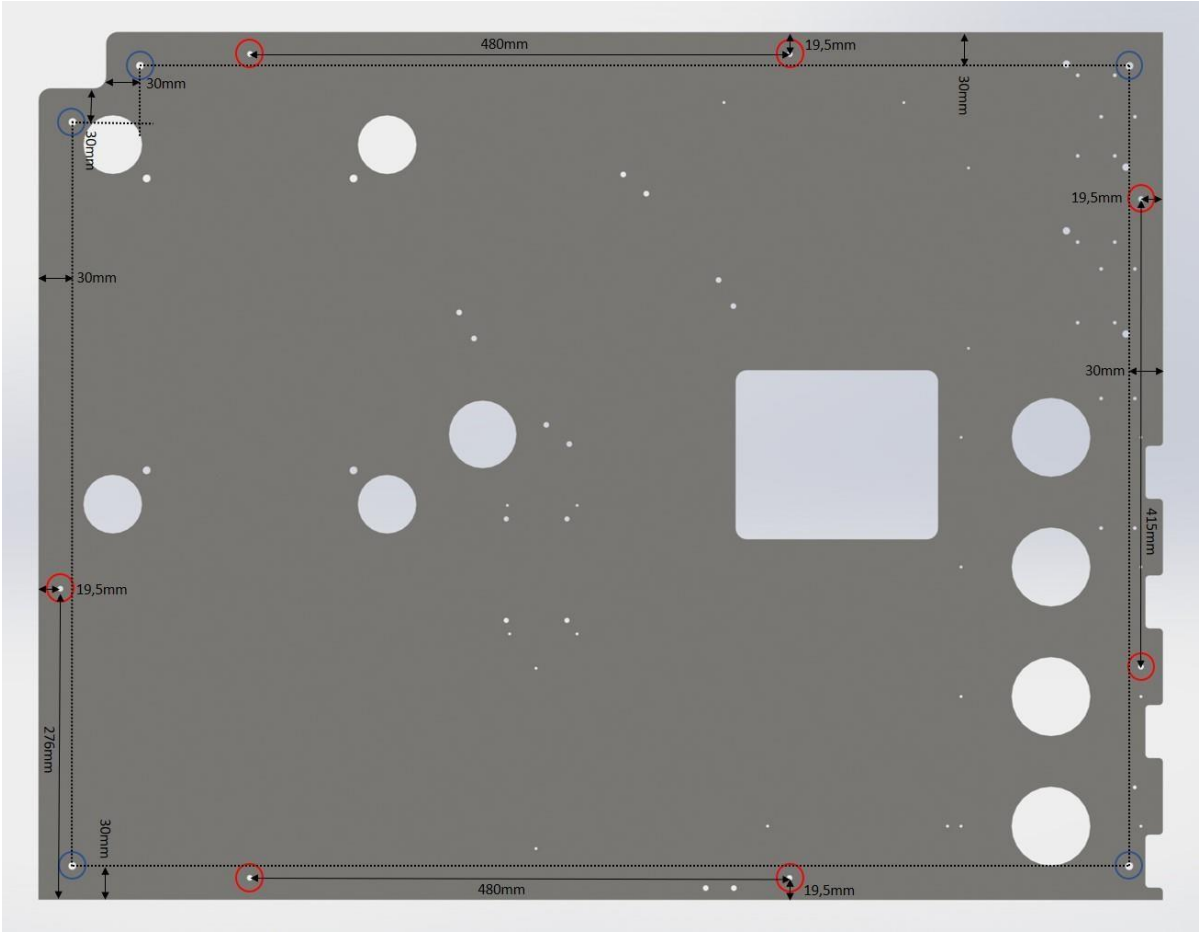
Figure 2: Top-down view of the recommended RA-I layout, components and teachpoints.

#	RA-I system component/position	Name of teachpoint(s)
1	Prometheus instrument	see #15
2	Robotic arm	-
3	Capillary chip container lid storage	ContainerLid_Storage
4	Capillary chip container storage	Container_Storage
5	Stacker 2	Stacker_2_BottomContainer Stacker_2_TopContainer
6	Stacker 1	Stacker_1_BottomContainer Stacker_1_TopContainer
7	Storage position for microtiter plate (MTP) 4	Plate_4
8	Storage position for MTP 3	Plate_3
9	Storage position for MTP 2	Plate_2
10	Storage position for MTP 1	Plate_1
11	Storage position for MTP plate lids	PlateLid_Storage
12	Waste cut-out (trash can below table)	-
13	Storage position for Prometheus capillary lid	DeviceLid_Storage
14	Tilting Unit	Tilting_Plate Tilting_BottomRow Tilting_TopRow
15	Open sample drawer of the Prometheus instrument	Device_Lid Device_Chip

5.2.1. Mounting

WARNING! The robotic autosampler integrable does not come with a protective enclosure! The integrating user is responsible for providing housing and protecting the user from any mechanical harms such as crushing, pinching, and poking. The system may not be operated until these safety features are in place and have been evaluated to be safe. Nanotemper is not responsible for any harm done by the system as a result of any mechanical interaction with the user.

The RA-I comes with a base mounting plate that offers multiple possible mounting points. Please refer to their relative positions in the pictures below. The customer must ensure the system is mounted appropriately and cannot tip, fall, or move in any way. An additional cut out is required for a waste bin to collect any discarded plates, chips, or containers.



5.2.2. Robotic Arm

All information needed for operating the robotic arm in the context of the Robotic Autosampler Integrable is given in this manual. For more details and specifications of the robotic arm itself, please refer to the manual of the manufacturer (Precise Automation PreciseFlex 400 Sample Handler).

Turn on the robotic arm by using the On/Off switch at its base. A green light at the switch indicates the “on” state. The robotic arm will initialize the gripper with a close-open motion. The robotic arm can be powered off or kept on between measurements.

The robotic arm has four points for movement, also called joints (see Figure 3): the shoulder, elbow, and wrist (gripper rotation) move the gripper in x and y directions, while movement up and down the base adjusts z direction. The gripper is able to move (grasp) microtiter plates (MTPs), MTP lids, capillary chips, capillary chip containers and their lids and the Prometheus instrument capillary lid.

Figure 3: The robotic arm anatomy and joints. (1) z column, (2) shoulder, (3) elbow, (4) wrist and (5) gripper and gripper fingers.

WARNING! The robotic arm has a release button located on the underside of the shoulder joint. Pushing this button will cause the robotic arm to release all joints and drop down. The weight of the robotic arm can injure hands and fingers and damage RA components. Do not push this button unless necessary. If you do push this button, be careful to catch the robotic arm to prevent it from falling. Be careful not to injure your hands or fingers.

The robotic arm is controlled by the software. While the robotic arm is moving to execute orders, three events can stop it:

- Triggering a break in the “soft emergency stop” circuit locks the robotic arm’s joints. The Prometheus instrument continues to measure the current chip and the robotic arm’s movement resumes after the circuit is remade.

- Failure to find or grasp an object causes the arm to pause and its joints to **lock**. An error message pops up on screen with instructions. Follow the instructions and click *OK* to resume. The Prometheus instrument continues to measure the current chip.
- An unexpected collision causes the robotic arm to stop and go into force-free mode, meaning all joints are **unlocked**. The gripper closes immediately and rapidly. If the gripper is holding a capillary chip at the time, the chip and its capillaries may burst. All current and following tasks are canceled and cannot be resumed. An error message pops up on screen informing the user what happened. The Prometheus instrument continues to measure the current chip.

When the robotic arm stops with its joints **unlocked** (force-free mode), the user can manually move it freely into the safe zone (see Figure 4). The robotic arm will remain in any position it is manually moved to. A new experiment can be started from the software.

When the robotic arm stops with its joints **locked**, it is still able to resume its previously interrupted movement. Moving the robotic arm manually in this situation has the same consequences as a collision: the joints unlock, the gripper closes, and all tasks are canceled. Manually moving the robotic arm during a measurement is recommended/necessary only after a collision.

WARNING! Glass capillaries can burst in the event of a collision and subsequent closing of the robotic arm gripper. Glass splinters can injure eyes and skin. Wear appropriate safety goggles when operating the RA-I.

Figure 4: The robotic arm's safe zone is indicated in green. The robotic arm is safe when its wrist is in the safe zone. As a rule of thumb, manually move the robotic arm's gripper so that the gripper fingers are located above the waste.

In case of a failed self-initialization of the robotic arm, restart the RA-I system and all its components. In case initialization still works, follow the following steps:

1. Shut down the robotic arm, the Tilting Unit, and the Prometheus instrument.
2. Move the robotic arm in the safe zone with the gripper above the waste.
3. Restart the PC.
4. Switch on the robotic arm, the Tilting Unit, and the Prometheus instrument.

5.2.3. Teaching Jig

The RA-I system contains a teaching jig for robot teaching purposes (Figure 5). It can be stored in the bottom shelf of the Prometheus instrument capillary lid storage. The teaching jig is only needed for initial setup and potential re-teaching of positions/teachpoints. If you notice a misalignment that requires re-teaching, please contact your NanoTemper Technologies representative for assistance.

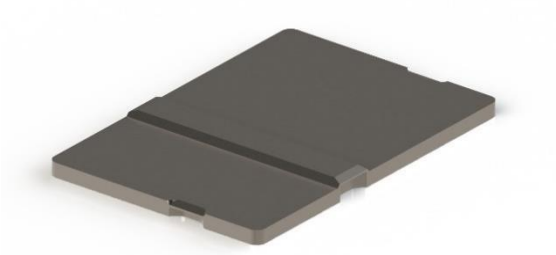


Figure 5: The RA-I teaching jig.

5.2.4. Microtiter Plates, Lids and Their Storage Positions

The RA-I allows for storage of up to 4 microtiter plates (MTPs) with plate lids. The RA-I is compatible with 384 well plates manufactured by Greiner Bio-One (REF: 784201, 781201, and 781280). If your setup requires the use of different plates, contact NanoTemper Technologies for information on potential solutions.

Position the MTPs on the designated plate positions labeled 1-4. The correct plate orientation is indicated. Always cover all plates with the supplied steel lids before starting the experiment. Do not use lids other than those provided with the system. Stack the remaining lids in the MTP plate lids storage position. This position is also used by the NT.RA-I for temporary storage of the lid of the currently used MTP during a measurement.

If necessary, clean the lids with pure water or a solution of up to 70% ethanol. Please be aware that the lids will reduce evaporation, but not eliminate it.

NOTE: Measurements will always be performed from plate 1→4 and lowest to highest rows (A→P).

Figure 6: Microtiter plate storage positions.

5.2.5. Capillary Chip Container Stackers

The two stackers hold up to 4 capillary chip container boxes each (64 capillary chips in total). Note that the topmost containers protrude above the top of the stackers.

NOTE: Before filling capillary chip containers into the stackers, remove the sealing tape and any residual glue so the lid can be easily opened by the robotic arm.

Ensure that chip containers are fully filled with 8 chips per container before starting an experiment. When starting an experiment, the RA-I software will automatically notify the user of the number of chip containers needed for the experiment and where to place them.

5.2.6. Capillary Chip Container Storage Position

The container storage position is used by the RA-I for temporary storage of the currently used capillary chip container during a measurement. Ensure that the container storage position is empty before starting an experiment.

NOTE: If the chip container is not empty at the end of the measurement, it will remain in this position and needs to be removed before starting the next experiment.

5.2.7. Capillary Chip Container Lid Storage Position

The container lid storage is used by the RA-I for temporary storage of the currently used capillary chip container lid during a measurement. Ensure that the container lid storage position is empty before starting an experiment.

5.2.8. Prometheus Capillary Lid and Storage

The Prometheus capillary lid is used to keep loaded capillary chips firmly in place on the thermal element during a measurement. During sample loading, the RA-I temporarily stores the Prometheus capillary lid on the Prometheus capillary lid storage position.

The Prometheus capillary lid is automatically stored inside of the Prometheus instrument when the RA-I system is not in use. Before starting an experiment, ensure that the Prometheus capillary lid is properly installed in the sample drawer.

5.2.9. Tilting Unit

The RA-I positions MTPs on the Tilting Unit for sample loading. The Tilting Unit tilts the MTP vertically to facilitate aspiration of the samples into the capillaries.

5.3. Cleaning

All surfaces except for the Prometheus instrument can be cleaned with water or up to 70% ethanol. Ensure that all power is turned off and plugs unplugged. Use a damp cloth to wipe surfaces.

6. Operating the RA-I

6.1. General Considerations

RA-I system installation and repairs should only be performed by trained NanoTemper Technologies staff. In addition to this user manual, please also consult the user manuals of your Prometheus instrument and the robotic arm (PreciseFlex 400 Sample Handler) to learn about potential hazards and risks before use. For questions, please contact support@nanotempertech.com.

WARNING! Prior to initializing the RA-I system or starting a measurement, make sure the space inside the enclosure is clear of obstructions. Collisions with foreign objects can lead to damage and misalignment of the instrument.

6.2. Sample Preparation

Prepare at least 20 µl of sample per well in a 384 well microtiter plate (MTP). The RA-I is compatible with 384 well plates manufactured by Greiner Bio-One (REF: 784201, 781201, 781280). If your setup requires the use of different plates, contact NanoTemper Technologies for information on potential solutions. For more details on sample properties and preparation, refer to your Prometheus instruments user manual.

Sample plates used with the RA-I need to be covered with the supplied steel lids. Other lids are not compatible and cannot be used with the system.

6.3. Plate Temperature Control

Plate temperature control enables individual temperature control of all 4 plate positions (see Figure 6) from 4 °C to 20 °C. For recommendations on plate temperatures with regards to ambient temperature and air humidity, please see the sections below.

6.3.1. Temperature Range

Cooling

Please ensure that your lab is condensation-free for the chosen temperature. Condensation is especially a risk at high ambient temperatures and high humidity in combination with low cooling temperatures. Condensation may impact the measurement and damage the device.

We recommend a cooling temperature of 8 °C to minimize the risk of condensation as opposed to 4 °C.

Room Temperature

For experiments where constant room temperature conditions are desired, choose a plate temperature of 20 °C.

The MTP lids supplied by NanoTemper Technologies minimize evaporation for the available temperature range.

For laboratories with low ambient temperatures: We recommend choosing the plate temperature depending on the ambient temperature in your lab. Plate temperatures higher than ambient temperatures may lead to sample loss by evaporation.

6.3.2. Operation

The temperature is set via RA.Automation service software and can be set individually for each plate position. It can also be deactivated for each plate position individually if needed. By default, the Plate Temperature Control is activated for all 4 plate positions upon login to the system. It will start heating/cooling immediately, using the last used temperature settings.

Cooling from room temperature to 8 °C takes approximately 10 min. It is recommended to store sample plates on the plate positions after the set temperature has been reached.

6.4. Measurement Workflow

The general workflow of a measurement is described below. Variations may apply depending on the specific experimental setup and instrumental configuration.

The user places the sample-containing microtiter plate (MTP) in MTP storage position. The robotic arm transfers the plate onto the Tilting Unit, retrieves a capillary chip from a capillary chip container, delivers the capillary chip to aspirate the samples, transfers the chip onto the drawer of the Prometheus instrument, and places the Prometheus capillary lid to hold the capillary chip in place. The drawer closes and the measurement is started. The robotic arm then returns the MTP to storage and replaces the lids onto the capillary chip container and the MTP. Once the experiment is complete, the robotic arm discards used capillary chips and empty chip containers and stores the Prometheus Series instrument capillary lid inside the Prometheus.

6.5. Standard Operating Procedure

1. Ensure all power strip switches are in the off position and the robotic arm is switched off.
2. Switch on the first power strip connected to the wall outlet.
3. Switch on the second power strip to power up the Prometheus, Tilting Unit, and Plate Temperature Control Unit.
4. Turn on the robotic arm by using the On/Off switch at its base. Green light indicates “on” state.
5. Turn on the PC and monitor using the appropriate power buttons on their chassis and frame.
6. Move the robotic arm into the safe zone. Remove any objects the robotic arm may be holding.
7. Store all MTP lids in the MTP lid storage position.
8. Ensure that the chip container storage position, chip container lid storage position, Prometheus capillary lid storage position, and Tilting Unit are empty.
9. Ensure the Prometheus capillary lid is inside the Prometheus instrument.
10. Use the RA-I service software (as described in Panta service software) to load the device with labware and start measurements.

Error! Reference source not found.01**Error! Reference source not found.NOTE**: In case a measurement is aborted via the control software before completion, the RA-I will stop at the next target position, and the Prometheus instrument will stop measuring immediately.

6.6. Manual Use of the Prometheus Instrument

The Prometheus can be used manually even when coupled to an RA-I system. Open the enclosure as needed and use the Prometheus touch display to open/close the sample drawer. Use the regular software packages (PR.Panta Control) for running measurements.

6.7. Long Term and High Temperature Measurements with the RA-I

Long term measurements > 3 h or thermal unfolding experiments which exceed a temperature of 95 °C require sealing of capillaries to prevent air-bubble formation and/or extensive evaporation. Since automated capillary sealing with the RA-I is not possible, such measurements must be performed manually. See 6.6 for manual use of the Prometheus when coupled to an RA-I system.

For fast and convenient capillary sealing, NanoTemper Technologies provides Capillary Sealing Paste (cat# PR-P001) and Capillary Sealing Applicators (cat# PR-P002). The sealing paste is chemically inert, silicone-free, and water-insoluble.

Measurements with durations below 3 h and temperatures up to 95 °C do not require capillary sealing due to the patented, sealing-free setup of Prometheus instruments.

7. RA-Integrable Software

The RA Integrable comes with a specialized software package called RA.Automation service software. This package includes a GRPC API for automated execution of commands. Please refer to the documentation of the Automation Service interface for details.

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