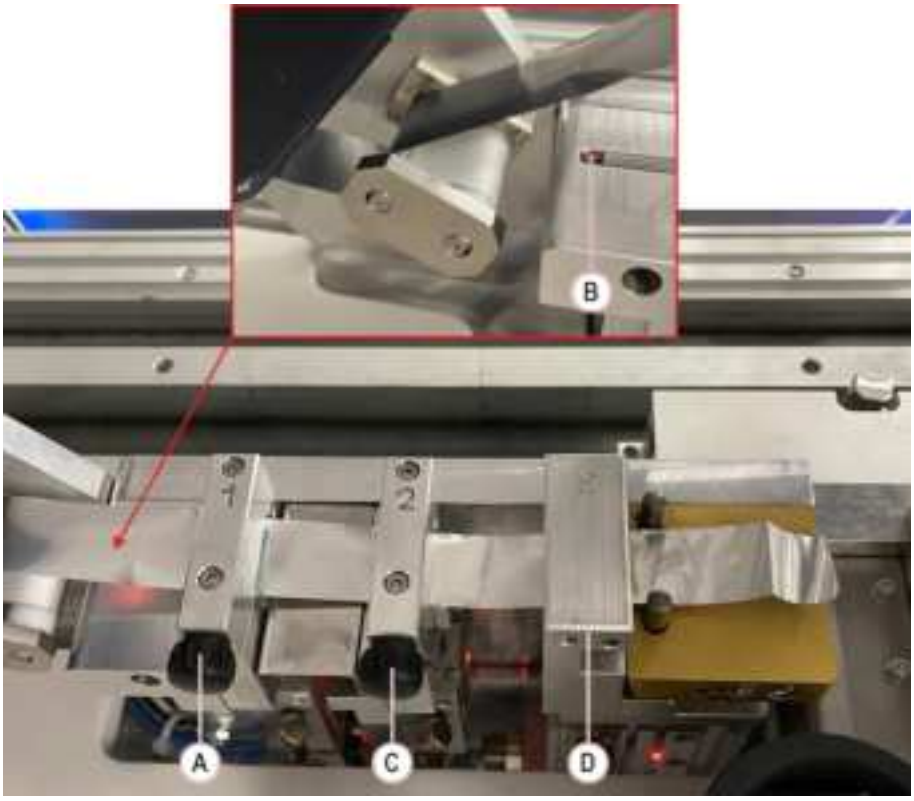
Figure 80:

4. Remove the safety tab from the new Sealer coil.
5. Install the new Sealer coil by aligning the peg (Figure 81 – A) of the reel support with the cavity (Figure 81 – B) in the Sealer coil case. The shiny surface of the aluminum stripe will be toward the top, the dull surface toward the bottom.

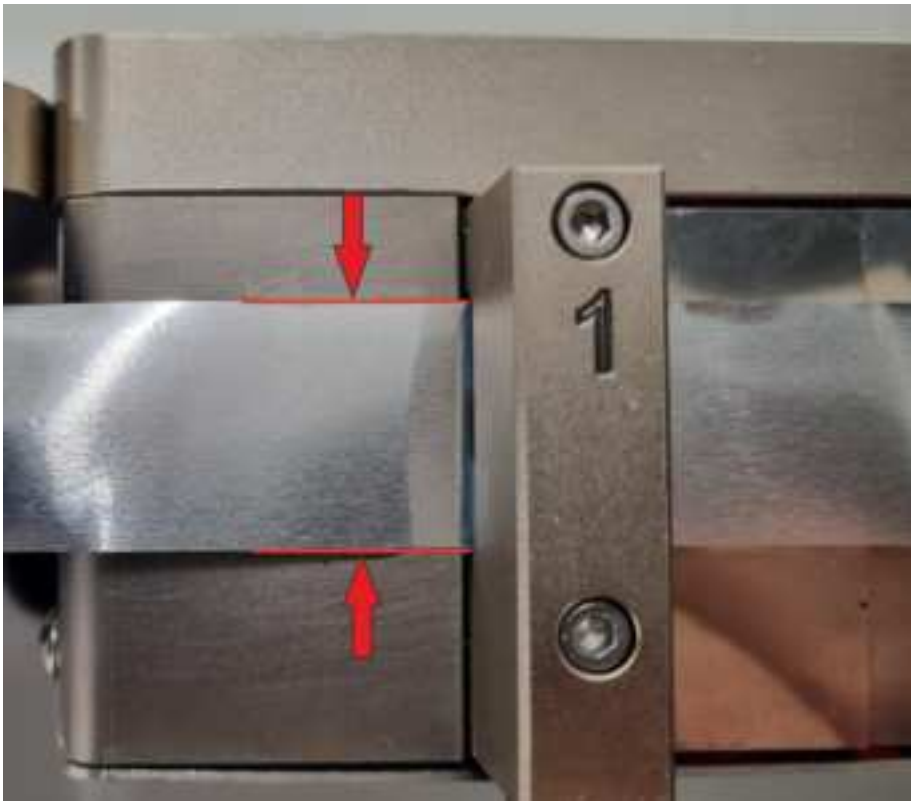
Figure 81:

6. Pull the aluminum stripe and place it as shown in the figure below. Then, insert the stripe under the Foil Locker (Figure 82 – A) ensuring that it is positioned on the Sealer coil sensor (Figure 82 – B), slide the aluminum stripe under the Puller (Figure 82 – C) , and then under the Cutter (Figure 82 – D).

Figure 82:



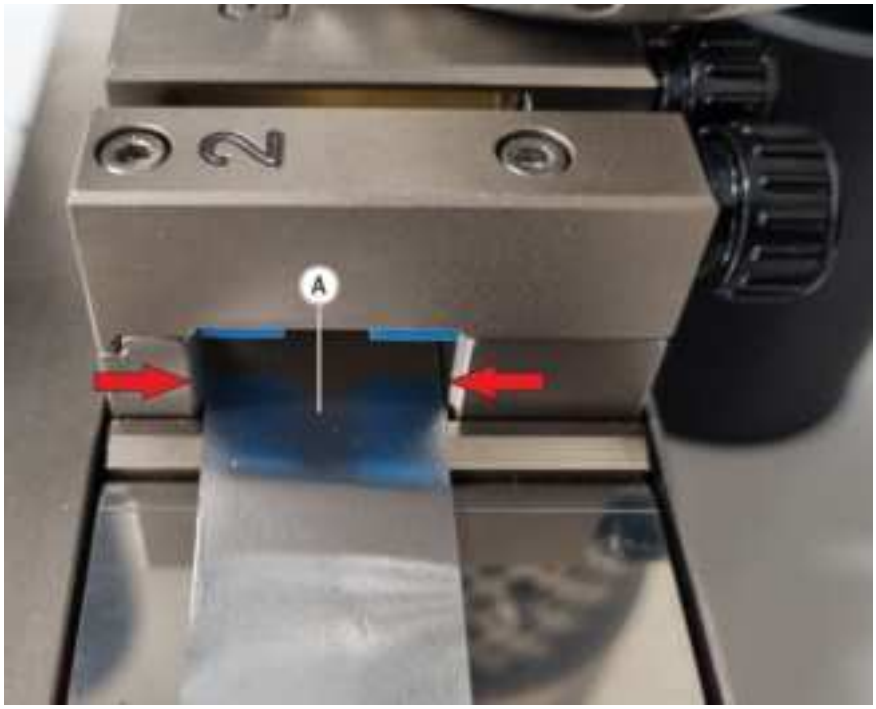
7. Do a check that the foil is centered as shown in the figure below.



8. Close the Sealer cover.

9. Reset the reel counter and initialize the new coil by cutting some pieces of foil:
   a. Select `Sealer` button in `Overview` screen.
   b. Select `Diagnostics` entry in the pop-up.
   c. Select `Reel` .
   d. Select `Init Foil Reel` function button that allows to cut the wrinkled part of the aluminum foil. The Sealer Module will cut some pieces of foil.
   e. Do a check that during the init process the foil (Figure 83 – A) does not touch the sides of the foil block.

   Figure 83:



10. Set the Sealer Module to on-line:
    a. Select `Overview` button.
    b. Select `Sealer` button.
    c. Select `Status` entry in the pop-up.
    d. Select `On-line` function button and confirm.

5.7.2.3 Verification steps

Verify that the status of the Module is Off-line.

5.8 Desealer Module

5.8.1 How to empty the waste container of the Desealer Module

The following procedure describes how to empty the waste container.

⚠ WARNING

Potential Biohazard.

Only trained Users should perform the following maintenance procedures. Follow your laboratory standard operating procedures and guidelines for biohazardous materials handling.

⚠ WARNING

Potential Biohazard.

Seals from sample tubes could be biohazardous. Follow your laboratory standard operating procedures and guidelines when handling and disposing of seals.

5.8.1.1 Prerequisites

Authorized personnel:	Operator
Conditions:	• Error message: `Basket Near To Full`
Tools and materials:	Biohazard waste bag (at the discretion of Laboratory)
Procedures:	None.

The Automation System counts the number of seals dispensed into the waste container and displays a warning when the configured threshold is exceeded.

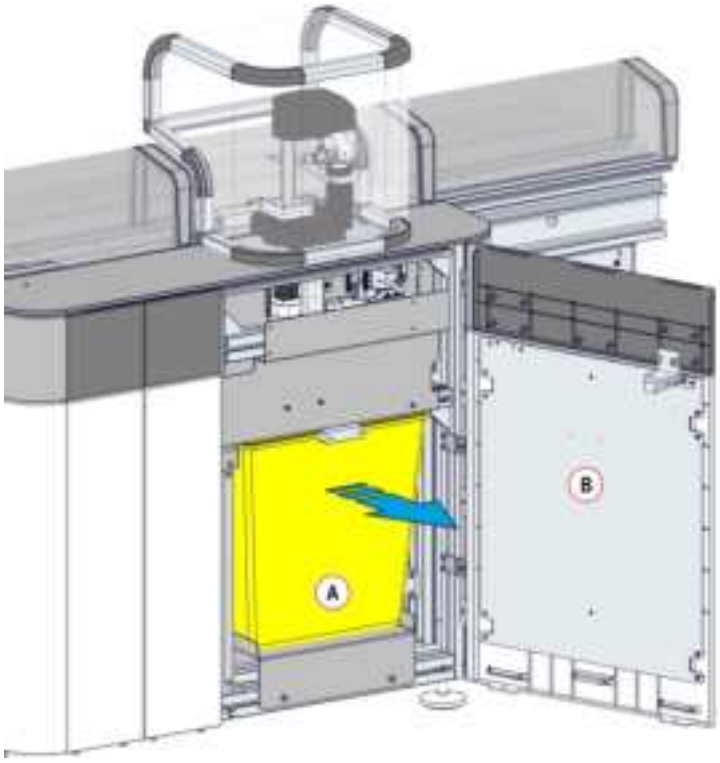
NOTICE

The number of seals present in waste container will not be updated until the waste container is emptied. If the waste is not emptied, accumulated seals can obstruct the Desealer tube. The Desealer Module will not be operational until the waste container will not be emptied.

5.8.1.2 Task steps

1. Open the frontal panel (Figure 84 – A) to access the Decapper waste container.
2. Slide the waste container (Figure 84 – B) all the way forward.

Figure 84:



3. Remove the biohazard waste bag (if present) and discard the bag with its contents according to standard laboratory practice and guidelines.

⚠ CAUTION

Lift Hazard.

The approximate weight of the waste container when filled with foils is 6 kg [13.23 lb]. Use care when handling to reduce the risk of injury.

4. At the discretion of Laboratory, install a new biohazard waste bag in the waste container. Use biohazard bags provided by the Laboratory in accordance with the Good Laboratory Practices.

NOTE

The biohazard waste bag must fit snugly in the waste container and be fully opened to allow the caps to drop freely into the container.

5. Ensure the waste container has been out of the system for more than 3 seconds. This will automatically reset the waste counter.
6. Slide the waste container back into the waste area, pushing firmly against the rear wall to ensure the container is in the correct position.
7. Close the panel of the Desealer waste container.

5.8.1.3 Verification steps

None.

5.9 Storage and Retrieval Module

5.9.1 How to do the emergency shutdown of the Storage and Retrieval Module

This procedure describes how to do an emergency shutdown of the Storage and Retrieval Module.

5.9.1.1 Prerequisites

Authorized personnel:	Trained operators
Conditions:	Module powered up
Tools and materials:	None
Procedures:	None

5.9.1.2 Task steps

1. Unplug in the independent Refrigerator Unit power cable if connected to a Laboratory outlet.
2. If there are sample tubes in the racks located in the robot area, contact FSE to remove them.

5.9.1.3 Verification steps

None.

5.9.2 How to empty the waste container of the Storage and Retrieval Module

The following procedure describes how to empty the waste container.

⚠ WARNING

Potential Biohazard.

Sample tubes could be biohazardous. Follow your laboratory standard operating procedures and guidelines when handling and disposing of tubes.

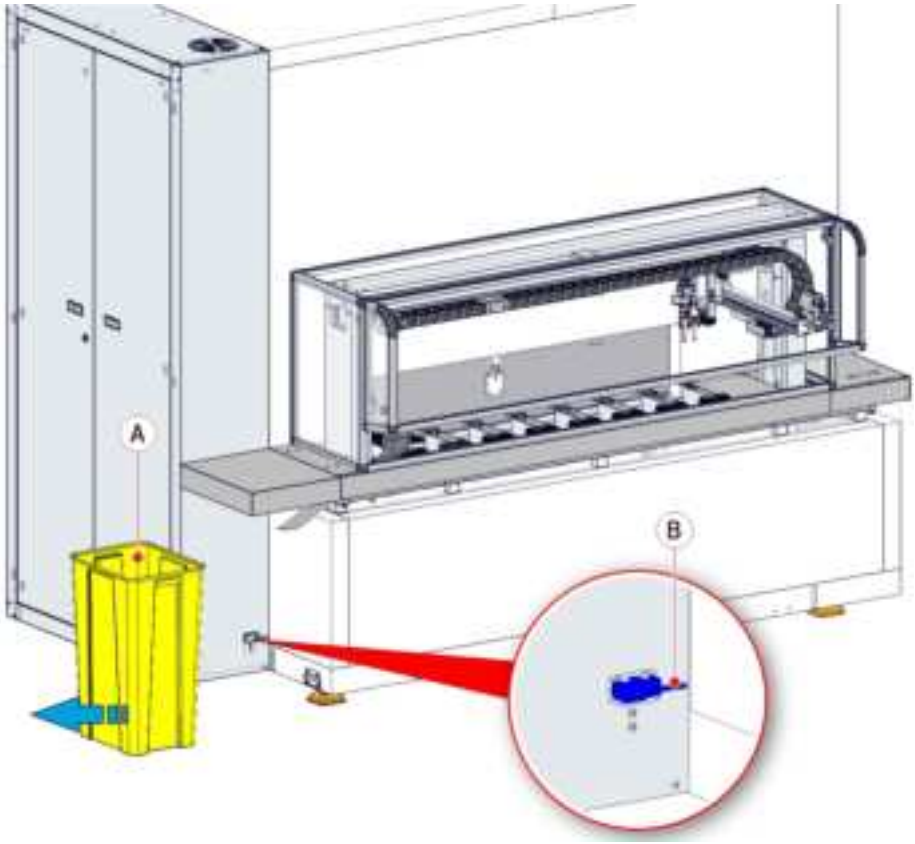
5.9.2.1 Prerequisites

Authorized personnel:	Operator
Conditions:	• Module Off-line • Error message: `Waste – Bin Almost Full`
Tools and materials:	• Waste container (provided by the Laboratory) • Biohazard waste bag (at the discretion of Laboratory)
Procedures:	None.

5.9.2.2 Task steps

1. Set the Module Off-line:
   a. Click on `Overview` and select `Storage`
   b. Click on `Status` menu.
   c. Select `Going Off-line` function button and select the option `Now`.
   d. Wait until the Module is set to Off-line.
2. Remove the waste container (Figure 85 – A).

Figure 85:



3. Remove the biohazard waste bag (if present) and discard the bag with its contents according to standard laboratory practice and guidelines.

> **⚠ CAUTION**
>
> **Lift Hazard.**
>
> The approximate weight of the waste container when filled with tubes is 11 kg [24.26 lb]. Use care when handling to reduce the risk of injury.

4. At the discretion of Laboratory, install a new biohazard waste bag in the waste container. Use biohazard bags provided by the Laboratory in accordance with the Good Laboratory Practices.

> ***NOTE***
>
> The biohazard waste bag must fit snugly in the waste container and be fully opened to allow the caps to drop freely into the container.

5. Ensure the waste container has been out of the system for more than 5 seconds. This will automatically reset the waste counter.
6. Restore the waste container against the Module. This will ensure to engage the waste presence sensor (Figure 85 – B).
7. Set the Module On-line to resume Module operations:
   a. Click on `Overview` and select `Storage`
   b. Click on `Status` menu.

c. Select `On-line` function button.
d. Wait until the Module is set to On-line.

5.9.2.3 Verification steps

Verify that the Module is back online.

6 Track and Automation Modules

The Track Module controls the motion of sample tubes from the Input Modules to the Pre-Analytical Modules, if applicable, then to the Analyzers, subsequently to Post-Analytical Modules, if applicable, and finally either to the Storage and Retrieval Module or to the Output Modules.

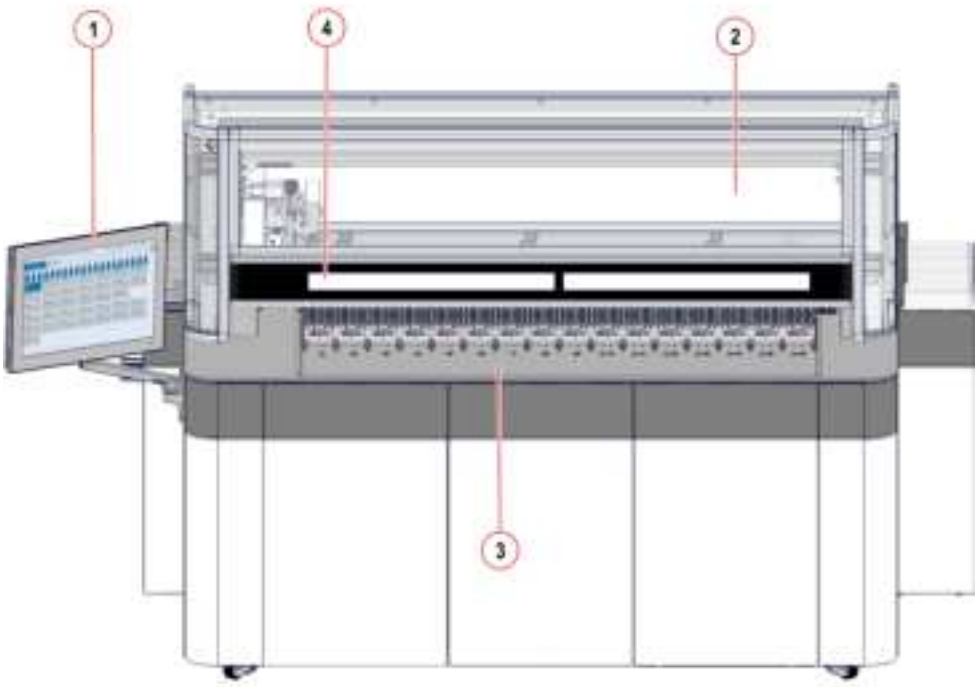
The Automation Modules are modules designed to automate Pre-Analytical, Post-Analytical processing and sample handling in the Clinical Laboratory.

6.1 Input/Output Module

6.1.1 Description

The Input/Output Module is intended to perform the automated loading on track, the unloading from track of sample tubes, and the management of in-error sample tubes returning them to dedicated lanes.

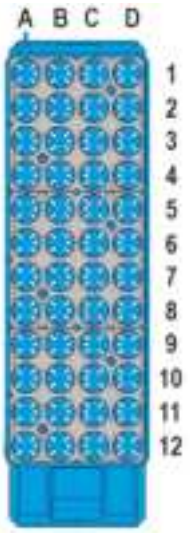
Figure 86: Input/Output Module



1. Panel PC (optional)
2. Safety cover
3. Worktable
4. Display bar

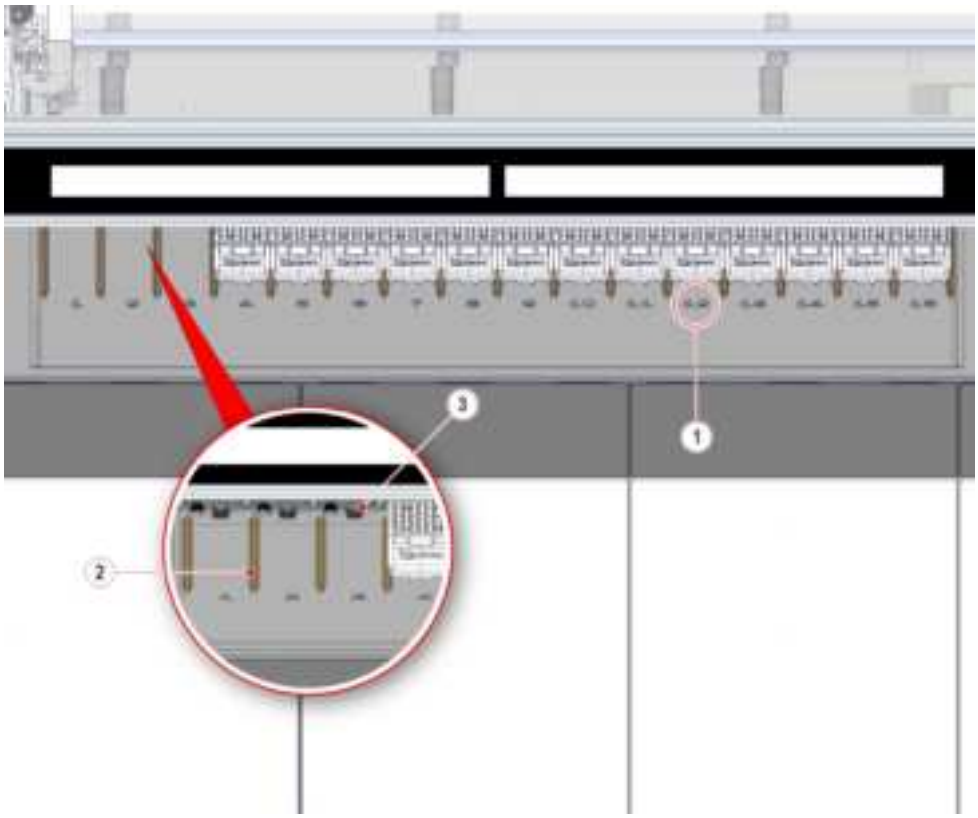
The Module manages samples tubes of different sizes that are located into specific 48-position racks, according to the lane configuration.

Figure 87: Inpeco rack



The Module allows to insert up to 16 racks, one rack for each lane.

Figure 88: Module lanes

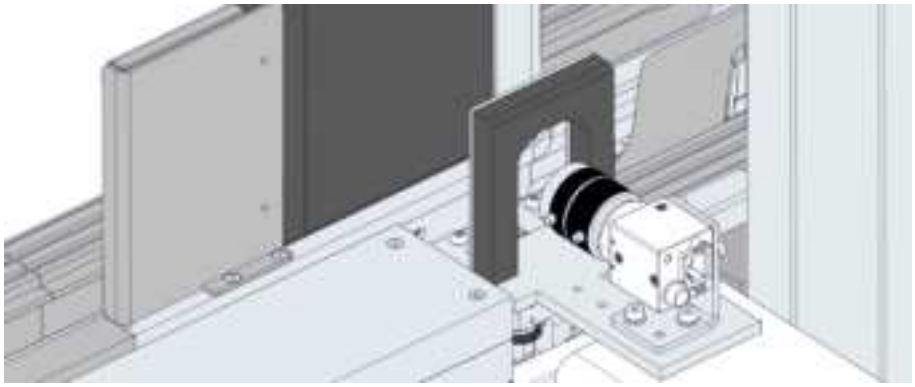


1. Lane number
2. Lane spacer
3. Latch

The Panel PC, if present, represents a fully integrated solution: all IT components are included in the PC itself, which also features of a touch screen monitor to access to the UI and perform all the standard operations.

The Module is equipped with the Vision System (VS) that allows to identify sample tube ID and recognize tube type features (cap color, cap presence and tube type).

Figure 89: Vision System



The Module is equipped with a lighting system to illuminate the area under the Module covers. The lighting system signals the Module status and warns the User if it is necessary to intervene. In particular:

Table 144: Lighting system – User intervention

Light	Meaning
Red	User intervention is required
Blue	User intervention is not required

Table 145: Lighting system – Module status

Light	Module status
On	• `On-line` • `Going to Off-line` [42]
Off	• `Off-line` • `Transitioning to Off-line` • `Initializing` • `Unknown`

NOTICE

The lighting system may malfunction. The UI is the main reference to understand the Module status and if the User intervention is necessary.

42. Only for Modules that support this status.

Observe the following instructions to ensure proper processing of the samples when using the Module:

Table 146: Allowable Sample Tube Types

Diameter (min-max) [mm] [43]	Length (min-max) [mm] [43]	Capped	Centrifuged	Source	Notes
11-16	65-100	No restrictions	No restrictions	Manual	None

⚠ WARNING

Pinch Hazard.

User injury in case of his hand enters the robot area.

Do not reach the area under the display bar when the rack is not inserted in the lane.

⚠ WARNING

Incorrect aspirated volume due to foam/bubbles/liquid meniscus in the sample.

In case of foam/bubbles/liquid meniscus inside the sample tube, an incorrect volume of sample can be aspirated and dispensed because of the presence of air instead of liquid, without user notification.

Therefore, it is strongly recommended, in case of aliquoted samples submitted to procedures that cause mixing, to perform a final centrifugation before letting them routed to the Aliquoter module or to any other automatic sample procedure.

⚠ CAUTION

Patient results delay.

Delayed patient results due to an unexpected safety cover opening.

Do not open the safety cover manually during sample tubes processing.

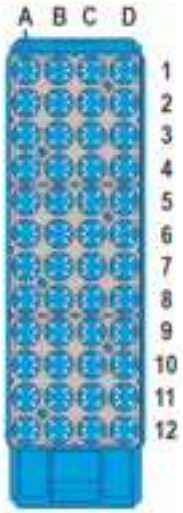
43. Nominal dimension (uncapped)

6.1.1.1 Input/Output Module configured as GPI

If the Module is configured to manage analyzer racks – i.e. Input/Output Module configured as GPI (General Purpose Input/Output Module) – it is possible to insert into Module lanes:

- 48-position racks (i.e. Inpeco racks).

  Figure 90: Inpeco rack

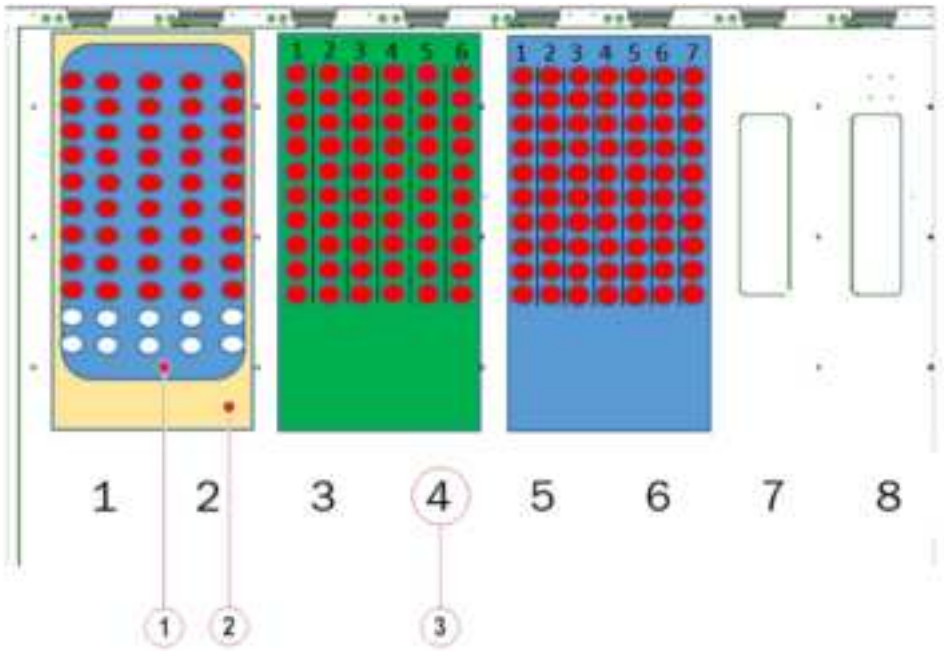


- customized trays containing Analyzer racks. Refer to Table 147 *Customized trays*, page 434 for the list of trays.

  Figure 91: Example of tray

Each tray contains a different number of racks. Trays can occupy two or more Module lanes. Here below an example of trays inserted in Module lanes.

Figure 92: Trays in lanes

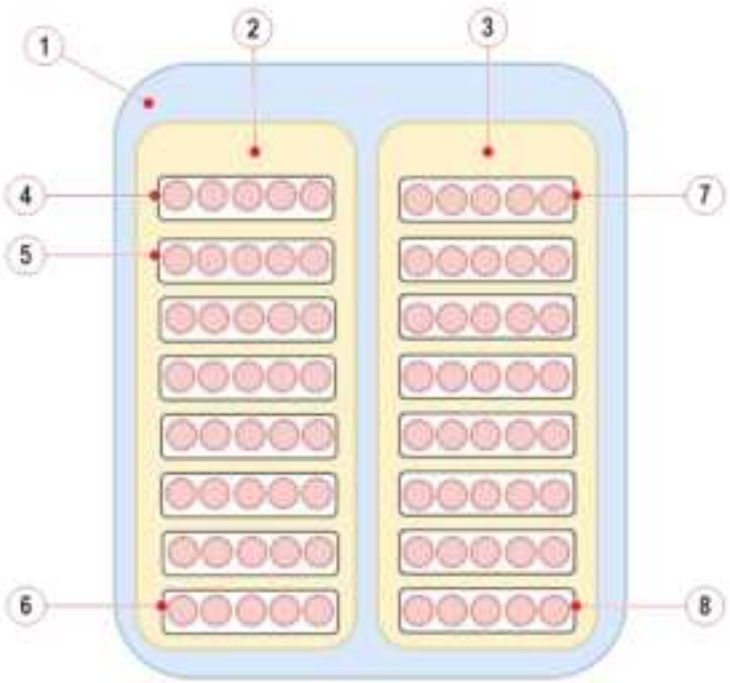


1. Racks
2. Tray
3. Lane number

Conventionally, the tray assumes the number of the first lane where it is inserted in. Therefore, with reference to Figure 92 *Trays in lanes*, page 433, the yellow tray is the Rack 1, the green tray is the Rack 3, the blue tray is the Rack 5.

Here below the location map of a tray composed of 2 columns.

Figure 93: Tray location map



1. Tray
2. Tray column 1
3. Tray column 2
4. Rack A
5. Rack B
6. Rack H
7. Rack I
8. Rack P

Follows the list of customized trays.

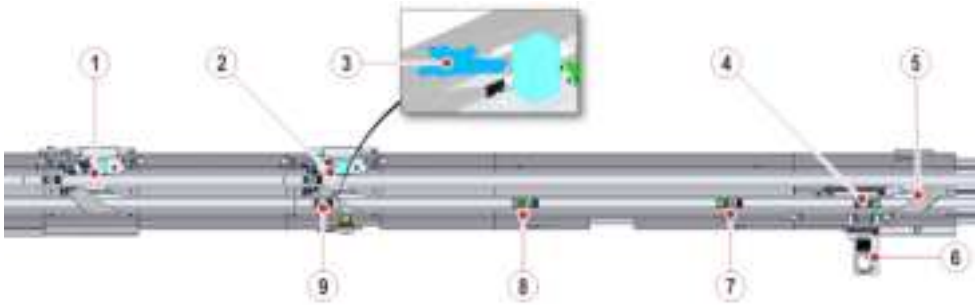
Table 147: Customized trays

Analyzer Tray	Prefix	Tube type allowed on the Analyzer Tray	Description displayed on IU and DBA
Euroimmune Workstation	EIM	Capped	Euroimmune
Helena ESH	HEL	Uncapped	Helena ESH
Beckman Coulter AU680	AU6801	Uncapped	Beckman Coulter AU680 (13 mm)
Beckman Coulter AU680	AU6802	Uncapped	Beckman Coulter AU680 (16 mm)
PerkinElmer AutoDELFIA	AUT	Uncapped	Perkin Elmer Autodelfia
Beckman Coulter Biomek	BMK1	Capped Uncapped	Beckman BIOMEK (13x75)
Beckman Coulter Biomek	BMK2	Capped Uncapped	Beckman BIOMEK (13x100)

6.1.2 Composition

Figure below shows the path of the carriers along the Buffer lane.

Figure 94:



1. Empty Carrier Divert Gate
2. Full Carrier Divert Gate
3. Downbridge Gate
4. Identification Gate
5. ATR device
6. Vision System
7. Load Gate
8. Unload Gate
9. Empty Carrier Buffer Gate

6.1.3 Module functioning

The input process is split in the following phases:

1. User loads a rack containing sample tubes into a lane pre-configured for input for those types of tubes, until the rack is completely inserted and locked between the dedicated lane spacers.
2. After that the rack is locked into the lane, the Antenna placed beneath the worktable reads the rack ID and then the module starts to load the sample tubes on the empty carriers present at the `Load Gate` of the Module.
3. If empty carriers are not already present at the `Load Gate`, they will be assigned and then diverted to the Module; after being checked the carrier RF-ID, they arrive at the `Empty Carrier Divert Gate` in order to be queued at the `Load Gate`.
4. After that the Module robot places a sample tube into an empty carrier waiting at the `Load Gate`, the carrier with the sample tube is released from the `Load Gate` and enters into the Vision System for identification.
5. The sample tube on carrier is then released to proceed on the main lane of the Automation track for being processed.

The output process is split in the following phases:

1. User inserts an empty rack in a lane configured for output.
2. After that the rack is locked into the lane, the Antenna placed beneath the worktable reads the rack ID and the Module is ready to unload the sample tubes diverted to the `Unload Gate`.
3. When a carrier with a sample tube arrives at the `Unload Gate`, it is stopped and the Module robot picks the sample tube from the carrier and places it into the proper output rack.
4. Then, the empty carrier is released and moved towards the `Load Gate`, where it can be used to load another sample tube from an input lane, or can be released as empty to the main lane of the Automation track.

NOTICE
In case of Module configured as GPI, the User will be able to load trays in addition to Inpeco racks.

6.1.3.1 Lane priority

Lanes are grouped by priority. The order of priority is the following.

Lane priority	Description
Lowest priority lanes	Sample tubes loaded in lowest priority lanes shall be processed with lower priority than the routine ones. [44]
Routine lanes	Sample tubes loaded in routine lanes shall be processed as routine tube. [45]
ASAP lanes	Sample tubes loaded in ASAP lanes shall be processed with higher priority respect to the routine ones. [45]
STAT lanes	Sample tubes loaded in STAT lanes are urgent and shall be processed with the highest priority. [45]

When a routine sample is loaded into priority input lanes (ASAP or STAT) the priority of the sample is upgraded to ASAP or STAT, respectively, and the Automation System sends an upgrade status notification to the Host, if this function has been enabled.

6.1.3.2 Sample management

Obey the following information to manage samples tubes by the Input/Output Module.

- Sample tubes are loaded to the Input/Output Module by racks.
- In case of Module configured as GPI, sample tubes are loaded to the Input/Output Module by trays. Each tray is considered to be a rack by the Input/Output Module.
- The rack can be used to group the tubes. The Automation System accepts tubes capped, uncapped, spun, not spun and sealed assuming that they are loaded to the appropriate lanes.
- Place the racks in the appropriate lanes. Always check the lane assignment before loading a rack. The lane assignment is represented by the icon displayed on the display bar.
- Load empty racks into lanes configured as `Priority Output` before processing. If an error occurs, the sample tube will be returned to the Priority Output rack.
- User can determine the order of samples processing by using the lane priority. Prioritized tubes should be loaded to Priority Input lanes (ASAP or STAT).
- In case a vacuum tube has erroneously been uncapped by the User, it shall not be manually recapped before loading to the Automation System. It shall be first centrifuged off-track (if needed), then loaded on the Automation System as uncapped by means of the correct input lane or Module.

44. Sample tubes loaded in this lane keep their own priority and do not inherit the priority of the lane where they are loaded in.
45. Sample tubes loaded in this lane inherit the priority of the lane where they are loaded in.

- Before loading sample tubes with see-through caps or tubes whose caps are translucent, make sure that there is no presence of sample or clot at the top of the sample tube. If there is presence of sample or clot, do not load sample tubes to Input/Output Module since it can adversely affect the color detection and assay results performed by the Vision System.
- In the same rack can be loaded tubes with different sizes.
- Decapped tubes cannot be spun on the Automation System.
- Sealed tubes must be loaded in dedicated lanes.
- Uncapped tubes can be loaded in the same rack of capped tubes. The rack shall be loaded to the appropriate lanes (e.g. `Routine Input`).
- Sample tubes loaded in lanes configured as `Uncapped Routine Input` (or `Uncapped Lowest Input`, `Uncapped ASAP Input`, `Uncapped STAT Input`) and `Sealed Input` (or `Sealed Lowest Input`, `Sealed ASAP Input`, `Sealed STAT Input`) will bypass both Centrifuge Module and Decapper Module.
- Sample tubes loaded in lanes configured as `Skip Centrifuged Routine Input` (or `Skip Centrifuged Lowest Input`, `Skip Centrifuged ASAP Input`, `Skip Centrifuged STAT Input`) will bypass the Centrifuge Module.
- Uncapped tubes should be loaded in `Uncapped Routine Input` lane (or `Uncapped Lowest Input`, `Uncapped ASAP Input`, `Uncapped STAT Input`) only. Do not load capped/sealed tubes in these lanes.
- Sealed tubes should be loaded in `Sealed Input` lane (or `Sealed Lowest Input`, `Sealed ASAP Input`, `Sealed STAT Input`) only. Do not load capped/uncapped tubes in these lanes.
- Centrifuged and decapped tubes should be loaded in `Routine Input` lane (or `Lowest Input` , `ASAP Input` , `STAT Input`) if a Centrifuge Module is installed.
- Decapped tubes should be loaded in `Routine Input` lane (or `Lowest Input` , `ASAP Input` , `STAT Input`) if a Decapper Module is installed.
- After starting up the Automation System, ensure that the input racks are in lanes assigned for their appropriate tube types, and empty racks are loaded in all of the output lanes.

Refer to the table below to determine the output lane where the tubes have been placed by the Input/Output Module.

Lane assignment	Lane used for
`Priority Output`	• Incomplete (I) samples in error; • samples being in the robot gripper when an error on sample movement or Module initialization occurred • Complete (C) or Incomplete (I) samples retrieved with a Deliver command (if no Sorted Output rack has been configured for this function); • Complete (C) samples due to an error; • Unloaded samples following the `Purge` command, regardless of their status.
`Complete Output`	Complete (C) samples in case no Storage Module is available.
`Incomplete Output`	Incomplete (I) samples due to unavailable assay or analyzer Off-line or in overload condition.
`Sorted Output`	Incomplete (I) samples with sorting tests.
`Dynamic`	Incomplete (I) samples due to unavailable assay or analyzer Off-line or in overload condition.
`Generic Sorted Output`	Incomplete samples due to unavailable assay or analyzer Off-line or in overload condition (for configured assays only).

6.1.4 Display bar

The display bar (Figure 86 *Input/Output Module*, page 428) is composed of two touchscreen monitors. During routine operation, each monitor is divided in 8 area (each one related to one lane).

The display bar provides the User the information about the lane status and the current lane configuration.

Figure 95: Lane information

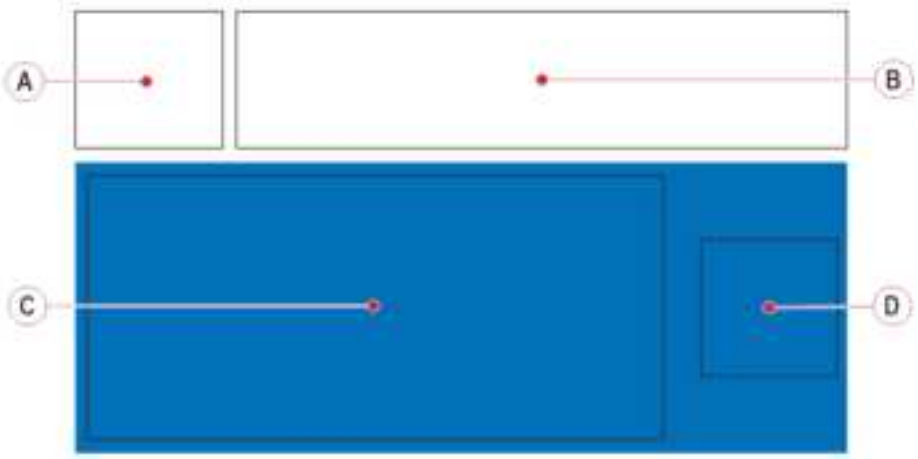


Table 148:

Item	Description	
Figure 95 *Lane information* – A	Graphical representation of the lane configuration. Refer to 6.1.4.1 *Lane configuration icons*, page 442.	
Figure 95 *Lane information* – B	Textual representation of the lane configuration.	
Figure 95 *Lane information* – C	Additional label to the lane. • If configured, it displays the `Label Configuration` for the columns of the lane (refer to 5.2.1 *How to configure the lanes of the Input/Output Module*, page 357). • Otherwise, it displays a customized text information (e.g. product logo). Following the request of rack extraction, the string `Rack to be extracted` notifies the User that the rack is ready to be extracted from the lane.	
Figure 95 *Lane information* – D		Rack inserted in the lane. Rack locked.
		Rack extraction – pending request. The release of the rack has been requested but the rack is still locked.

Table 148 (cont'd.)

Item	Description	
		Rack extraction – request completed. Rack unlocked.
		No rack inserted in the lane. The icon indicates the residual risk (pinch hazard) for the User.

In case of error condition on the lane, the display bar provides the following information on a red background.

Figure 96: Lane information – lane in error

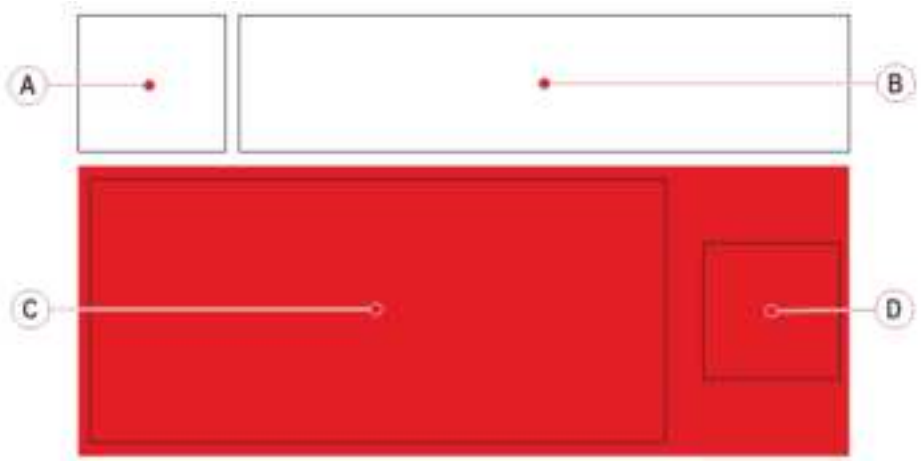


Table 149:

Item	Description	
Figure 96 *Lane information – lane in error* – A	Graphical representation of the lane configuration. Refer to 6.1.4.1 *Lane configuration icons*, page 442.	
Figure 96 *Lane information – lane in error* – B	Textual representation of the lane configuration.	
Figure 96 *Lane information – lane in error* – C	Message error. Following the request of rack extraction, the string `Rack to be extracted` notifies the User that the rack is ready to be extracted from the lane.	
Figure 96 *Lane information – lane in error* – D		Rack inserted in the lane. Rack locked.
		Rack extraction – pending request. The release of the rack has been requested but the rack is still locked.
		Rack extraction – request completed. Rack unlocked.

Table 149 (cont'd.)

Item	Description	
		No rack inserted in the lane. The icon indicates the residual risk (pinch hazard) for the User.

6.1.4.1 Lane configuration icons

The icons identifies the lane configuration.

Table 150: Lane configuration – Input lanes

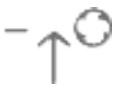
Icon	Lane configuration	Description
	`Dynamic`	Lane used for routine input and, after being emptied, for incomplete output.
	`Lowest Input`	Lane used to load sample tubes with lowest priority.
	`Routine Input`	Lane used to load sample tubes not centrifuged for routine processing. Sample tubes will be automatically detected as capped or uncapped by the Vision System. Sample tube is considered as centrifuged if no Centrifuge Module is installed.
	`ASAP Input`	Lane used to load sample tubes not centrifuged with ASAP priority.
	`STAT Input`	Lane used to load sample tubes not centrifuged with STAT priority.
	`Skip Centrifuge Lowest Input`	Lane used to load prespun and capped sample tubes with lowest priority.
	`Skip Centrifuge Routine Input`	Lane used to load prespun and capped sample tubes for routine processing.
	`Skip Centrifuge ASAP Input`	Lane used to load prespun and capped

Table 150 Lane configuration – Input lanes (cont'd.)

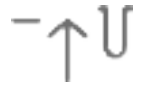
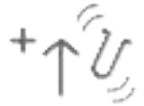
Icon	Lane configuration	Description
		sample tubes with ASAP priority.
	`Skip Centrifuge STAT Input`	Lane used to load pre-spun and capped sample tubes with STAT priority.
	`Uncapped Lowest Input`	Lane used to load uncapped sample tube with lowest priority.
	`Uncapped Routine Input`	Lane used to load uncapped sample tube for routine processing.
	`Uncapped ASAP Input`	Lane used to load uncapped sample tube with ASAP priority.
	`Uncapped STAT Input`	Lane used to load uncapped sample tube with STAT priority.
	`Sealed Lowest Input`	Lane used to load sealed sample tubes with lowest priority.
	`Sealed Input`	Lane used to load sealed sample tube for routine processing.
	`Sealed ASAP Input`	Lane used to load sealed sample tube with ASAP priority.
	`Sealed STAT Input`	Lane used to load sealed sample tube with STAT priority.
	`Long Term Storage Input`	Lane used to load sample tubes for Long Term Storage only.
	`Shaken Uncapped STAT Input`	Lane used to load shaken uncapped tubes with STAT priority.
	`Shaken Capped STAT Input`	Lane used to load shaken capped tubes with STAT priority.

Table 151: Lane configuration – Output lanes

Icon	Lane configuration	Description
	`Sorted Output`	Lane used to unload sample tubes with sorting tests or with configured error codes.
	`Generic Sorted Output`	Lane used to unload sample tubes with test orders configured as `Generic Sorted Output` in `IOM Generic Sorting Tests` (`Settings` screen).
	`Incomplete Output`	Lane used to unload incomplete sample tubes (for parking tubes, i.e. sample tubes that did not complete their processing on the Automation System; if the rack remains locked on the lane, sample tubes will be automatically reloaded on track as necessary).
	`Complete Output`	Lane used to unload complete tubes or, if configured, to unload tubes routed to Storage Module or ROM when they are unavailable or in case `IOM Helps Storage to Unload Tubes` is configured as `Yes`.
	`Priority Output`	Lane used to unload sample tubes with error codes or sample tubes requested by the User.
	`Dynamic`	Automatically selected when the `Dynamic` Input Lane is selected.

In case of anomalies, the following icon is displayed:

Table 152: Icon for anomalies

Icon	
	Lane not configured.

6.1.5 Status, diagnostics and settings

To access the information about status, diagnostics and setting related to the Module, select:

1. `Overview`
2. `Input/Output`

NOTE
Common Function buttons are also available in the following screens.

6.1.5.1 Status

Select `Status` from the Module options menu.

Table 153: Status list box

Item	Description
`Node ID`	Identifier assigned to the Module during the Automation System configuration.
`Room for Empty Carriers`	Number of empty carriers that can currently enter the Module buffer.
`Room for Routine Samples`	Number of routine samples that can currently enter the Module buffer.
`Room for STAT Samples`	Number of STAT samples that can currently enter the Module buffer.

Table 154: Status function buttons

Function button	Access level	Description
`Remove Tube`	Operator	Press this button when a sample tube has been physically removed from the Module.

6.1.5.2 Settings

Select `Settings` from the Module options menu.

Table 155: Settings list box

Item	Description
`Error Code`	Error code related to the Module.
`Label Lane XX`, with (XX = 01 to 16)	Displays the label configured for the lane XX, with (XX = 01 to 16). [46]
`Lane XX Type`, with (XX = 01 to 16)	Display the lane configuration, with (XX = 01 to 16). [46] • In case of Lane configured for customized tray, the field is composed by <Lane type;Tray type; (D)dynamic/(S)static attribute> e.g. (CI;DXI1;D) • In case of Lane configured for Inpeco Rack, the field is composed by <Lane type> (e.g. CI)

Table 156: Setting function buttons

Function button	Access level	Description
`Tube Gripper`	Supervisor	Allows to: • Open the robot gripper. • Close the robot gripper. • Rotate the robot gripper. • Move the robot gripper to standard position (i.e. gripper in non-rotated position).
`Arm`	FSE	Moves the robot arm along the selected axis.
`Approach`	Supervisor	Moves the robot toward the selected position, in particular: • `P1 Position` corresponds to the position A1 of the Inpeco rack on Lane 1; • `P2 Position` corresponds to the position D1 of the Inpeco rack on Lane 16.
`Move`	Supervisor	Moves the robot to the selected position, in particular:

46. If a tray occupies several lanes, the information on the rightmost lanes occupied by the tray will be empty.

Table 156 Setting function buttons (cont'd.)

Function button	Access level	Description
		• `P1 Position` corresponds to the position A1 of the Inpeco rack on Lane 1; • `P2 Position` corresponds to the position D1 of the Inpeco rack on Lane 16.
`Home`	Supervisor	Allows to: • Move the robot to the Home position without gripper initialization. • Initialize the robot.
`Tube Orient.`	Supervisor	Allows to enable/disable the tube orientation before unloading the tube to the output racks. The tube orientation is enabled by default.
`Recirculation`	FSE	• If `Disabled`, in case a sample tube is flagged as unreadable, the Module does not release the sample tube on the Automation track but the sample tube with error is placed in a Priority Output rack . • If `Enabled`, in case a sample tube is flagged as unreadable, the Module releases the sample tube with error on the Automation track.
`Teach`	FSE	Allows to teach the robot positions.

6.1.5.3 Gates

Select `Gates` from the Module options menu.

Table 157: Gates list box

Item	Description
`Empty Carrier Buffer Gate`	Displays the RF-ID of the carrier currently located at the gate and the sample ID, if available.
`Error Code`	Error code related to the Module.
`Identification Gate`	Displays the RF-ID of the carrier currently located at the gate and the sample ID, if available.
`Load Gate`	Displays the RF-ID of the carrier currently located at the gate and the sample ID, if available.
`Unload Gate`	Displays the RF-ID of the carrier currently located at the gate and the sample ID, if available.

Table 158: Gates function buttons

Function button	Access level	Description
`Pass`	Supervisor	Activates the selected gate to allow a sample carrier to be released.
`Divert`	Supervisor	Activates the selected gate to allow a sample carrier to be diverted.
`Active Return`	Supervisor	Activates the ATR belt motor.
`ACR`	Supervisor	Activates (if `Lock` is selected) or deactivates (if `Unlock` is selected) the ACR device.

6.1.5.4 Diagnostics

Select `Diagnostics` from the Module options menu.

Table 159: Diagnostics list box

Item	Description
`01 Actual Gripper Encoder (1/10 mm)`	Actual position of the robot gripper opening.
`02 Actual X-Axis Position (1/10 mm)`	Actual position of the robot X axis.
`03 Actual Y-Axis Position (1/10 mm)`	Actual position of the robot Y axis.
`04 Actual Z-Axis Position (1/10 mm)`	Actual position of the robot Z axis.
`Error Code`	Error code related to the Module.

Table 160: Diagnostics function buttons

Function button	Access level	Description
`Check Rules`	FSE	Allows to read the rules (i.e. sorting tests) configured for each lane assigned to `Sorted Output`.
`Reset Tube`	FSE	Resets the location of the sample tube holding by the robot gripper. To be executed when removing a sample tube from the robot gripper manually during a guided recovery.
`Vision`	FSE	Allows to: • return version of the Vision System • process a sample by the Vision System • restart the software of the Vision System
`Rack`	Supervisor	Allows to: • Read the rack ID when inserted at a specific lane • Release the rack to extract it from a specific lane • Check the presence of the rack at a specific lane
`Cover Unlock`	Supervisor	Not applicable.

NOTICE

The function button `Cover Unlock` does not have any effect since the safety shield is not locked when closed.

Follow the error recoveries displayed on UI, execute the command `Cover Unlock` and open the safety shield.

6.1.5.5 Diagnostics – Robot

Select `Diagnostics – Robot` from the Module options menu.

Refer to Table 159 *Diagnostics list box*, page 448 for more information.

Table 161: Diagnostics – Robot function buttons

Function button	Access level	Description
`Home`	Supervisor	Moves the robot to the Home position without gripper initialization.
`Init`	Supervisor	Initializes the robot.
`Axis`	FSE	Enables/disables the motor driver of the selected axis.
`Arm`	FSE	Moves the robot arm along the selected axis.
`Approach`	Supervisor	Moves the robot toward the selected position.
`Move`	Supervisor	Moves the robot to the selected position.
`Pick`	FSE	Allows the robot to perform a pick operation from the rack at the lane selected. If `Peek and Verify from Rack Lane XX`, the robot performs a simple touch at the specified coordinate in order to verify the expected tube presence. After peeking, the gripper releases the tube without moving it.
`Place`	FSE	Allows the robot to perform a place operation to the rack at the lane selected.

6.1.5.6 Diagnostics – Light Signals Device

Select `Diagnostics – Light Signals Device` from the Module options menu.

Refer to Table 159 *Diagnostics list box*, page 448 for more information.

Table 162: Diagnostics – Robot function buttons

Function button	Access level	Description
`Lamp Off`	Operator	Turns off the lighting system.
`Lamp On`	Operator	Turn on the red or blue light of the lighting system.