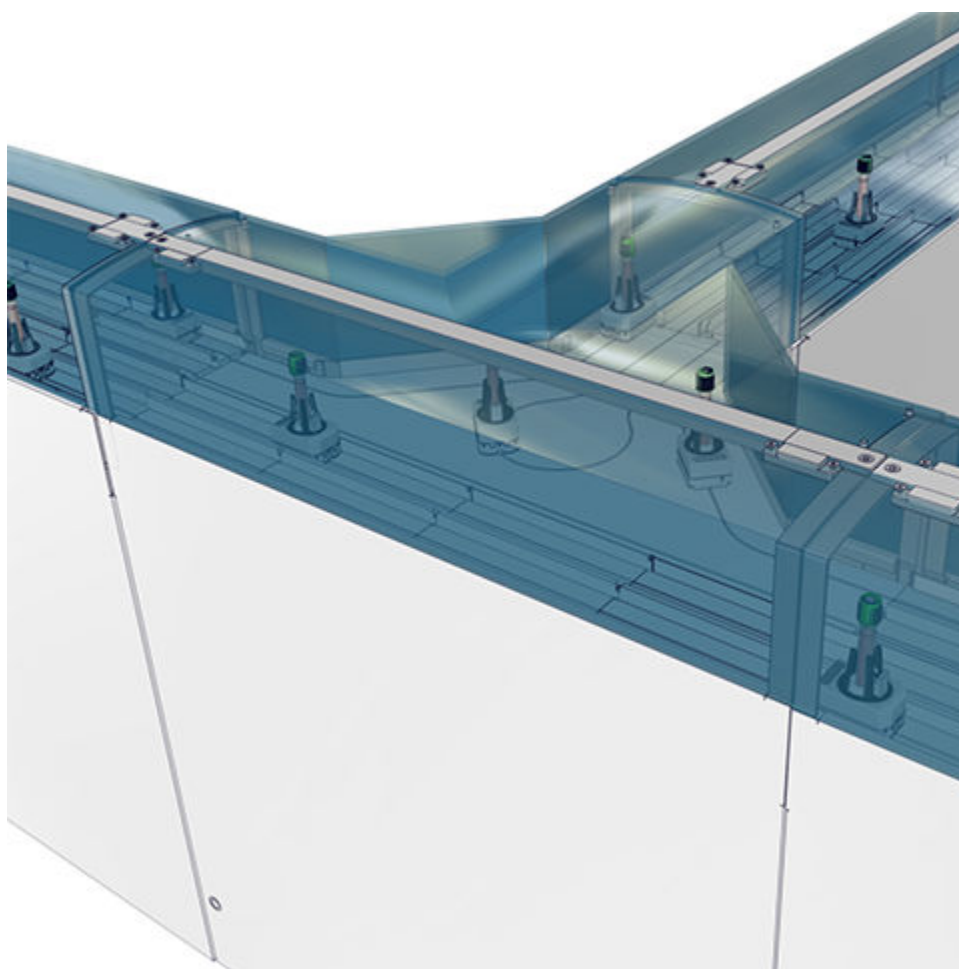




GLP systems Track

Operations Manual

For use with the GLP systems Track Laboratory Automation System, the Track Sample Manager, the Track Workflow Manager, and the Input/Output Module

80003968-101 DRAFT

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NOTES

Foreword

This operations manual is intended for the relevant laboratory staff operating the Abbott Automation Solutions GLP systems Track.

Ensure that this operations manual is read and understood before laboratory automation system (LAS) startup is performed. The operations manual is supplied as scope of delivery of the product and should be available to the laboratory staff at all times.

This operations manual contains information on the LAS properties and handling, and instructions and measures for maintaining its operational readiness.

The LAS is a modular, customer-specific design. This operations manual is the base system manual of the LAS. The manuals for other modules are supplemental information to this operations manual. Ensure that the manuals relating to each single component are observed. In addition, observe the manuals for the connected analyzers.

For laboratory professional use only.

Related information...

General safety information, page 8

System security, page 9

Customer service, page 10

Intended use, page 11

Proprietary statement, page 12

Disclaimers, page 13

GLP systems Track warranty statement for USA customers only, page 14

GLP systems Track agency approvals, page 15

Intellectual Property statement, page 17

Key to symbols, page 18

Manufacturer and distributor, page 22

General safety information

Before operating the GLP systems Track, you should read and understand the safety information in this manual.

For information about actions or conditions that can affect system performance, carefully review operational precautions and limitations in this manual.

To become familiar with safety icons on the instrument and in this manual that indicate potentially hazardous situations, review hazards in this manual. Comply with the hazard and safety information to minimize the potential for harm to personnel and damage to the laboratory environment.

The sections for operational precautions and limitations and for hazards contain supplemental information. Do not use the supplemental information to supersede workplace safety requirements. Review any significant differences between the supplemental information and the workplace safety requirements with management or a workplace safety representative.

For customers in the European Union: If, in the course of using this device, you have reason to believe that a serious incident has occurred, please report it to the manufacturer and to your national authority.

The GLP systems Track is state-of-the-art. However, residual dangers exist. The safety instructions must be read and observed. The manufacturer accepts no liability for failure to observe the safety instructions.

Related information...

Read me first, page 7

Operational precautions and limitations, page 175

Hazards, page 179

System security

Abbott Laboratories is committed to the security of the laboratory automation system (LAS) and reducing cybersecurity risks associated with our medical devices.

Abbott Laboratories recognizes the importance of incorporating cybersecurity considerations early and throughout our product design and development process. Our cybersecurity controls were designed, developed, and implemented based on leading practices, regulatory guidance, and government agencies.

Although we have designed the LAS with cybersecurity controls, our customers also play a vital role in protecting information security:

- Use of good laboratory practices and adherence to applicable regulations is recommended at all times.
- The system should be installed in a secure location, including workstations used to access the Track Sample Manager (TSM) and Track Workflow Manager (TWM) user interfaces remotely.
- Only authorized users should have access to the system because the system may contain protected health information (PHI) or sensitive data.
- Although the LAS incorporates cybersecurity risk mitigation controls relating to network connectivity, each system should be installed on a secure network that adheres to best practices from a network security perspective to prevent unauthorized access to data transmission between the LAS and external systems, such as a printer or host.
- The LAS also incorporates cybersecurity risk mitigation controls relating to connecting USB storage devices. Reports or other data exported to USB storage devices should be controlled with appropriate laboratory practices.
- When a customer-owned server for TSM or TWM is decommissioned or disposed, the customer should remove all PHI or sensitive data from the server.
- Operators should completely log off from the web user interface after each session by closing the entire web browser.

Related information...

[Read me first](#), page 7

Customer service

For questions about the GLP systems Track, contact the local representative or find country-specific contact information at corelaboratory.abbott.

In addition, contact the local representative or use country-specific contact information to request instructions for use.

Related information...

[*Read me first*](#), page 7

Intended use

The GLP systems Track is a modular laboratory automation system designed to automate pre-analytical and post-analytical processing, including sample handling, in order to automate sample processing in clinical laboratories. The system consolidates multiple analytical instruments into a unified workflow.

Related information...

[Read me first](#), page 7

Proprietary statement

The GLP systems Track software programs and system documentation are protected by copyright (©2022 Abbott Laboratories, Abbott Park, Illinois). All rights are reserved.

The software and manual were developed solely for use with the laboratory automation system as specified in the operating instructions.

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Related information...

[Read me first](#), page 7

Disclaimers

All samples (printouts, graphics, displays or screens, etc.) are for information and illustration purposes only and shall not be used for clinical or maintenance evaluations. Data shown in sample printouts and screens do not reflect actual patient names or test results.

The Information was developed to be used by Abbott Laboratories trained personnel, by other persons knowledgeable or experienced with the operation and service of the product identified, under the supervision and with cooperation from Abbott Laboratories technical support or service representatives.

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Incremental manual updates may cause the page numbering of the Master Table of Contents and the Master Index to change.

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Related information...

[Read me first](#), page 7

GLP systems Track warranty statement for USA customers only

Abbott Laboratories warrants new instruments sold by Core Diagnostics to be free from defects in workmanship and materials during normal use by the original purchaser. This warranty shall continue for a period of one year from the date of shipment to the original purchaser, or until title is transferred from the original purchaser, whichever occurs first (the "Warranty Period").

If any defects occur during the Warranty period, contact your Abbott Customer Service Representative immediately, and be prepared to furnish information including the serial number, the model number, and pertinent details concerning the defect.

This Warranty does not cover defects or malfunctions which: (1) are not reported to Abbott during the Warranty Period and within one week of occurrence; (2) result from chemical decomposition or corrosion; (3) are caused primarily by misuse, alteration, damage or failure to comply with any requirements or instruction contained in the applicable Abbott Operations Manual (including the substitution of any reagent not authorized by Abbott); or (4) result from maintenance, repair, or modification, performed or attempted by personnel not authorized by Abbott without Abbott's authorization.

Abbott's liability for all matters arising from the supply, installation, use, repair, and maintenance of the instrument, whether arising under this Warranty or otherwise, shall be limited solely to the repair or (at Abbott's sole discretion) replacement of the instrument or of components thereof. Replaced parts shall become the property of Abbott Laboratories. In no event shall Abbott be liable for injuries sustained by third parties.

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Related information...

[Read me first](#), page 7

GLP systems Track agency approvals

The GLP systems Track has been tested and found to comply with the following agency standards, European Union (EU) directives, and regulations:

- UL 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- IEC/EN 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- CAN/CSA-C22.2 No. 61010-1 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use - Part 1: General Requirements
- IEC/EN 61010-2-101 Safety requirements for electrical equipment for measurement, control and laboratory use - Part 2-101: Particular requirements for in vitro diagnostic (IVD) medical equipment
- IEC/EN 61010-2-081 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
- IEC/EN 61010-2-020 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-020: Particular requirements for laboratory centrifuges
- IEC 60825-1: 2014, Safety of laser products - Part 1: Equipment classification and requirements
- IEC/EN 61010-2-011 Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 2-011: Particular requirements for refrigerating equipment
- Directive 2012/19/EU: Waste Electrical and Electronic Equipment (WEEE)
- Directive 2011/65/EU: Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS 2) and amending directive EU 2015/863 (RoHS 3)
- Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- Directive 2006/42/EC of the European Parliament on machinery
- IEC/BS EN 61326-1 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements
- IEC/BS EN 61326-2-6 Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-6: Particular requirements - In vitro diagnostic (IVD) medical equipment
- Directive 2014/53/EU: Radio Equipment
- Federal Communications Commission (FCC) Part 15.225 - Operation within the band 13.110-14.010 MHz

- Radio Standards Specification (RSS) 210 Issue 10:2019 License-Exempt Radio Apparatus: Category I Equipment



Legal Manufacturer	Abbott Automation Solutions GmbH Sachsenkamp 5 20097 Hamburg Germany +49 40 809051-111
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This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by Abbott Automation Solutions for compliance could void the user's authority to operate the equipment.

This device complies with Industry Canada license-exempt RSS standards. Operation is subject to the following two conditions: (1) This device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

NOTE: The software has not been evaluated to UL 1998, *Standard for Software in Programmable Components*.

Related information...

[Read me first](#), page 7

Intellectual Property statement

GLP systems Track and related brand marks are trademarks of Abbott. Other trademarks are the property of their respective owners.

Related information...

[Read me first](#), page 7

Key to symbols

Symbols must not be removed, painted over, or rendered illegible. Damaged notices must be replaced. The following symbols may be attached to the GLP systems Track.

Harmonized symbols

Directive 2012/19/EU

Symbol	Description
	WEEE: Waste Electrical and Electronic Equipment NOTE: Indicates that the item needs to be disposed of in a separate waste collection for electrical and electronic equipment and must not be disposed of in the general waste or trash.

IEC 60825-1

Symbol	Description
	Caution: Embedded Class 2 Lasers. Do not open module covers while the bar code readers are turned on. Do not stare into the beam.

IEC 61010-1

Symbol	Description
	Caution: Consult accompanying documents
	Caution: Hot surface
	Caution: Possibility of electric shock

IEC 61010-2-101

Symbol	Description
 	Caution: Biological RISKS

Symbol	Description
	<i>In Vitro</i> Diagnostic Medical Device

ISO 3864

Symbol	Description
	Caution: Mind or watch your hands

ISO 7010-M002

Symbol	Description
	Observe operations manual

ISO 7010-P015

Symbol	Description
	Caution: Do not reach inside

ISO 7010-W020

Symbol	Description
	Caution: Overhead obstruction

ISO 7010-W022

Symbol	Description
	Caution: Sharp element

ISO 15223-1

Symbol	Description
	Date of manufacture

Symbol	Description
	Do not reuse
	Keep dry
	Manufacturer
	Temperature limitation
	Use by/Expiration date
	Batch code/Lot number
	Catalog number/List number
	Serial number

ISO 15223-1, ISO 7000

Symbol	Description
	Fragile, handle with care

Nonharmonized symbols

Symbol	Description
	Caution: Disconnect Mains Plug
	"Conformité Européenne," compliance of a product with the applicable European Union legal provisions.
	Distributed by
	Distributed in the USA by

Symbol	Description
FOR USE WITH	For use with
Produced for Abbott Automation Solutions by	Produced for Abbott Automation Solutions by
PRODUCT OF GERMANY	Product of Germany
Rx ONLY	Caution: Federal law restricts this device to sale by or on the order of a physician, or with the descriptive designation of any other practitioner licensed by the law of the State in which the practitioner practices to use or order the use of the device.
UNIT	Unit

NOTE: The precise location of the symbols is specific to each module. For more information, see the sections on the relevant modules in this manual.

Related information...

Read me first, page 7

Manufacturer and distributor

Manufacturer

Abbott Automation Solutions GmbH
Sachsenkamp 5
20097 Hamburg
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+49 40 809051-111

As the manufacturer of the GLP systems Track components, Abbott Automation Solutions GmbH is responsible for the general functionality and performance of each single component. Any additional responsibilities are subject to the written contractual agreements between the distributor and the owner.

Sales partners

The distributor is the owner's contractual partner.

Acting as the middleman between the manufacturer and the owner, the distributor is responsible for the customer-specific system design, system installation, and all maintenance performed according to the manufacturer's service requirements.

Owner

The owner is the natural or legal person who operates or owns the laboratory automation system.

Related information...

[Read me first](#), page 7

Introduction

This section provides information on the purpose and structure of the operations manual as well as reading and orientation aids for the operations manual.

Related information...

Organization of the operations manual, page 24

Conventions for the operations manual, page 26

Operations manual description, page 28

Operations manual use, page 29

Organization of the operations manual

Section	Description
Read me first	- General safety information - Customer service contact information - Intended use of the system
System documentation	- Content organization and conventions - Use of the operations manual
Section 1: Use or function	- GLP systems Track overview - Track overview - CAR overview - Track Sample Manager (TSM) overview - Track Workflow Manager (TWM) overview - Input/Output Module (IOM) overview - RackPorts overview - FlexRacks overview
Section 2: Installation procedures and special requirements	- Transportation, installation, disassembly, and disposal - IOM configuration
Section 3: Principles of operation	- General operation - Control system - TSM functional description - TWM functional description
Section 4: Performance characteristics and specifications	System specifications and requirements
Section 5: Operating instructions	Procedures for routine system operation
Section 6: Calibration procedures	Not required
Section 7: Operational precautions and limitations	Operational requirements, precautions, and limitations to ensure optimal operator safety and accurate test results
Section 8: Hazards	Hazard and safety information
Section 9: Service, maintenance, and diagnostics	- Procedures for cleaning - Maintenance checks
Section 10: Troubleshooting	- Troubleshooting basics - Probable causes and corrective actions for error messages - Probable causes and corrective actions for observed problems
Revision history	History of revisions to the operations manual
Glossary	Alphabetical listing of terms that are used in the operations manual

Section	Description
Index	Alphabetical listing of subject matter with references to the location of information

Related information...

[System documentation](#), page 23

Conventions for the operations manual

Conventions are a set of defined standards that are used to communicate meaning in an expected manner.

Table 1: Text conventions

Description	Use
Italic font style	Indicates a reference to related information.
Bold font style	Emphasizes key words in procedures. For example, in the numbered steps, bold font style is applied to the following elements: • Toolbar, icon, and menu items • Buttons • Commands • Lists and tabs • Dialog box titles and options
Numbers in brackets (for example, [1] and [2])	Reference specific areas of a graphic.

Table 2: Number format conventions

Description	Use
Comma in numbers	Separates thousands in numbers that are greater than 9999 (for example, 10,000 specimens).
Period in numbers	Separates the integer part from the fractional part of a number written in decimal form (for example, 3.12%).

Table 3: Content conventions

Description	Use
Safety symbols and the CAUTION signal word	Identify activities that expose the operator to potentially dangerous conditions.
IMPORTANT signal word	Advises the operator to comply with precautions to prevent a negative impact on system operations or results.
NOTE signal word	Provides information that is relevant to the topic content.
Related information list	Provides references at the end of a topic that are related to the topic.

Table 4: Graphic conventions

Description	Use
Numerical references on graphics	Indicate items in a graphic that are described in the legend.

Related information...

[System documentation](#), page 23

Operations manual description

The operations manual is designed to be the quickest and most accurate resource for informational needs.

Related information...

[System documentation](#), page 23

Operations manual use

The operations manual is designed for quick access to information needed to:

- Understand the concepts behind system operation and performance.
- Accomplish a task.
- Recover from an error.
- Troubleshoot a problem.

Related information...

[System documentation](#), page 23

NOTES

Introduction

The GLP systems Track is a modular laboratory automation system used to perform multiple pre-analytic and post-analytic steps to automate sample preparation and distribution processes in clinical laboratories. These processes include bar code identification of samples, centrifugation, aliquoting of samples, transport of samples between processes (modules), and delivery of samples to one or more Abbott and third-party commercially available laboratory analyzers. Each module includes a built-in touchscreen, a user interface that functions as a central operating and display element.

After samples have been loaded onto the system, they are loaded into transport vehicles (CARs) that run on an intermodule track system. Samples are then directed to the sample preparation modules and connected analyzers. After the analysis process is completed, the samples are available to be removed, archived, or disposed.

The system can perform the following sample processing steps:

- Loading in racks
- Identification by using bar codes
- Transporting and tracking
- Preparation for removal

Optional sample processing steps, such as aliquoting, are available with additional modules.

The automation software offers features including workload management, sample-to-analyzer routing (based on sample orders from the laboratory information system and the Track Workflow Manager), and module operating mode monitoring by using communication links between the automation system, analyzers, and middleware.

The GLP systems Track does not modify the intended use of the analytic functionality of connected equipment. Test results and sample-related data are not transferred.

Related information...

[GLP systems Track overview](#), page 32

[Track overview](#), page 34

[CAR overview](#), page 40

[Track Sample Manager overview](#), page 44

[Track Workflow Manager overview](#), page 45

[Input/Output Module overview](#), page 46

[RackPorts overview](#), page 55

[FlexRacks overview](#), page 56

GLP systems Track overview

The CARs on the GLP systems Track transport the samples to the various modules. External analyzers are connected to the track through specific interfaces.

The following list describes the main functions of the track system:

Track sections	Include floor and ceiling sections and provide space for laboratory utility lines carrying electricity, water, or wastewater.
Track elements	Include straight tracks, curves, junctions, alternating tracks, charge lanes for charging of the CARs, maintenance lanes for defective or faulty CARs, and pass points for CAR identification recognition and location identification.
AccessPoints	Hold CARs and samples in place, allowing for secure sample processing.
CARs	Transport the samples to the modules. The Track Sample Manager ensures that the CARs navigate smoothly in the laboratory automation system (LAS).

The LAS may include the following modules:

Input modules	Input/Output Module (IOM)	The IOM is the central module for the input and output of sample tubes. In addition, areas of the drawers can be configured as an archive or for loading and unloading racks.
Preanalytical modules	Aliquot Module (AM)	The AM distributes the sample matter of a primary sample tube to secondary tubes. During the aliquoting processes, secondary tubes are assigned and provided with a customer-specific bar code. This bar code is verified before the tubes leave the module.
Analyzer feed modules	Sample Access Line (SAL)	The SAL is an interface between the GLP systems Track and an analyzer. The analyzer pipettor aspirates the sample from the sample tube in the CAR while

the CAR is secured at the aspiration
AccessPoint on the SAL.

Related information...

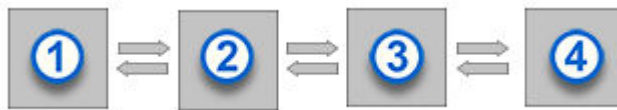
[Use or function](#), page 31

[Communication paths](#), page 33

Communication paths

The following figure shows the communication paths.

Figure 1: Flowchart of communication paths

**Legend:**

1. Laboratory information system (LIS) with middleware
2. Track Workflow Manager (TWM)
3. Track Sample Manager (TSM)
4. GLP systems Track

The following list describes the communication paths:

1. The LIS sends the requested analyses to the middleware. The middleware then forwards these analyses to TWM.
2. Using these analyses, TWM creates targets on the GLP systems Track, which are then communicated to TSM.
3. TSM sends detailed instructions for where the sample should be processed on the track.
4. The track notifies TSM of the current location of the sample and the processing steps that have been performed.
5. TSM sends this information to TWM. If necessary, this information is also forwarded to the LIS with the middleware.

Related information...

[GLP systems Track overview](#), page 32

[Track Workflow Manager interface](#), page 72

Track overview

CARs travel on the track to transport the samples to the various modules.

Externally supplied analyzers are connected to the track by specific interfaces such as the Sample Access Line.

The track structure is customizable and can be extended as required. The track comprises the support system and lane elements.



CAUTION: The support system houses electronic components and customer-specific supply lines. To avoid a tripping hazard, ensure that cords and cables in high-traffic areas are routed safely.

The support system and several track sections compose a track segment, which is controlled by a segment controller. The Track Sample Manager (TSM) controls the active lane elements and enables the CARs to move individually on the track. TSM is configured with the custom layout of the track.



CAUTION: Finger pinches can occur if the track hoods close during work on the track. Use caution when working on the track.



CAUTION: Injury or bodily harm can occur when track hoods are opened and closed or when they are open during work on the track. When working on the track with the track hoods open, be aware of moving parts. Do not reach into the path of moving parts.



CAUTION: Possibility of electric shock. The track is high voltage. Therefore, track hoods will stay in place.

Related information...

[Use or function](#), page 31

[Track section](#), page 34

[Lane elements](#), page 35

[Layout tab element descriptions \(TSM\)](#), page 112

[Open and close the front and rear module covers](#), page 160

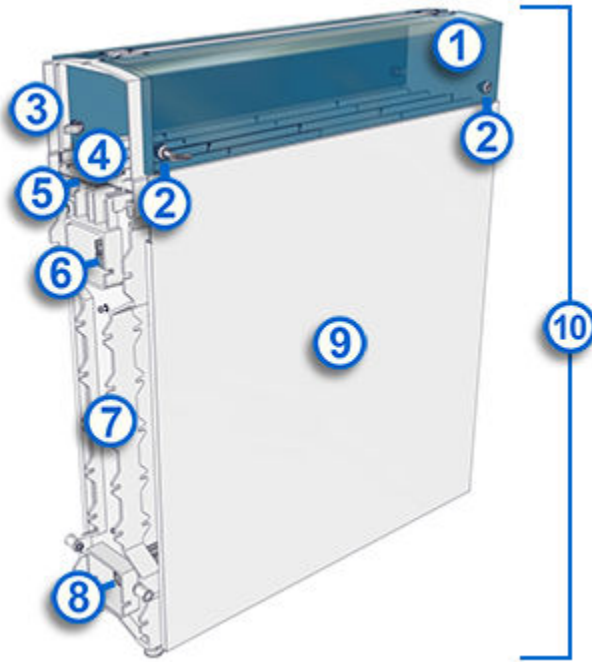
[Unlock and lock the track hoods](#), page 96

Track section

The modular design of the track sections allows the laboratory automation system to support a customer-specific structure.

The track hoods include locks and side casing to protect the electronic components, lane elements, and CARs from dust and manual access.

Figure 2: Track section and support system

**Legend:**

1. Track hood
2. Track hood locks
3. Track hood bracket
4. Lane element
5. Positioning plate for lane elements
6. Support rail for cables
7. Support pillar
8. Support rail for customer-specific cables and equipment
9. Side casing
10. Track section

Related information...

[Track overview](#), page 34

[Unlock and lock the track hoods](#), page 96

Lane elements

All lane elements are composed of a plastic body and two lanes. The guiding slot in the lane element is used to guide the CARs.

The track has two types of lane elements:

Active lane elements Track elements that communicate with CARs and the Track Sample Manager to perform actions.

Passive lane elements Hardware elements that are used for the track component transport functions.

Related information...

[Track overview](#), page 34

[Active lane elements](#), page 36

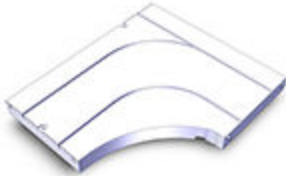
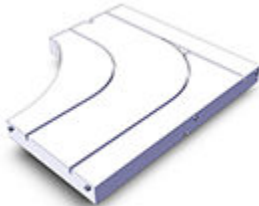
[Passive lane elements](#), page 37

[Special lane elements](#), page 38

Active lane elements

Active lane elements have a printed circuit board and can be actively controlled.

Active lane element	Illustration	Design and function
Cross switch		Enables CARs to switch lanes.
AccessPoint		Enables CARs to stop. With the guiding pin, the CAR moves against the horizontal holding pin in the guiding slot. The side-clamping jaws clamp the CAR.
PassPoint		Forwards the CAR ID to the control system when the PassPoint is crossed.
Charge lane		Receives CARs with batteries that need to be charged. Generally, a maximum of four charge lane elements can be placed together to form a charge lane. Each charge lane element accommodates a maximum of

Active lane element	Illustration	Design and function
		three CARs. When the CAR is in the charging position, the charging contacts move up and out of the floor and connect to the charging contacts on the CAR.
Active T-element		Allows CARs to change directions.
Switch 90 convergent		Merges a CAR from a module back onto the track.
Switch 90 divergent		Switches a CAR from the track to a module for sample processing.

Related information...[Lane elements](#), page 35**Passive lane elements**

Passive lane elements have no printed circuit board and cannot be controlled.

Passive lane element	Illustration	Design and function
Straight lane element		Has two lanes.
T-piece with internal loop		Allows CARs to branch off or change directions.

Passive lane element	Illustration	Design and function
Maintenance lane		Receives released defective CARs without samples.
Internal U-turn		Enables a change in direction within the route.
90-degree curve lane element		Enables a 90-degree change in direction.

Related information...

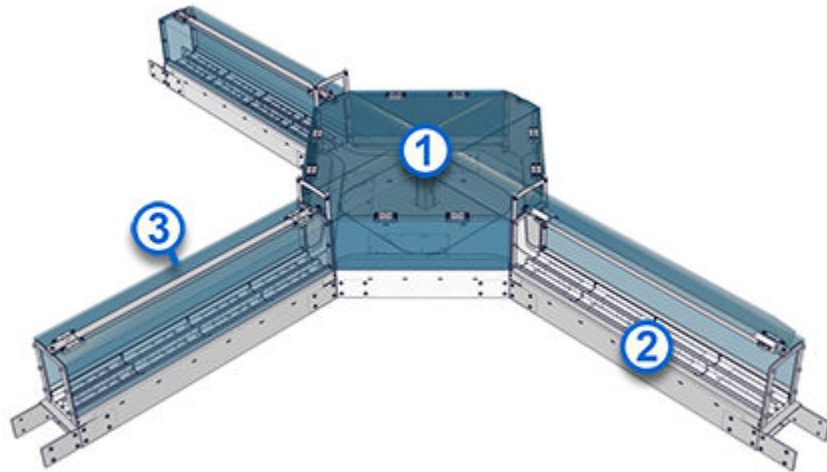
[Lane elements](#), page 35

Special lane elements

Special lane elements can be used to meet customer-specific requirements for laboratory automation. Special lane elements are passive lane elements.

The roundabout is a lane element that increases CAR traffic flow.

Figure 3: Roundabout overview

**Legend:**

1. Roundabout
2. Straight lane element
3. Track hood

Related information...

[Lane elements](#), page 35

CAR overview

CARs transport the samples to the modules.

The Track Sample Manager ensures that the CARs navigate smoothly in the laboratory automation system. A rechargeable lithium battery is the energy source for the CAR. Various speed profiles are available.

To charge the rechargeable lithium battery, the CARs automatically move into the charge lane. Light-emitting diodes are used to indicate the operational status of the CAR. The front underseal can be replaced if damaged or worn.

Related information...

Use or function, page 31

CAR design and function, page 40

CAR design and function

The CAR is an autonomous means of transport.

Figure 4: CAR (isometric view)



Legend:

1. ID plate: The ID plate is preassigned by the manufacturer and is fitted to the CAR.
2. Chassis: The chassis is the housing of the CAR.

3. Left-hand collision sensor: Collision sensors measure the distance from the preceding CAR and then forward this information to the control electronics of the CAR. The CAR brakes as necessary.
4. Front collision sensor: See the description for the left-hand collision sensor.
5. Right-hand collision sensor: See the description for the left-hand collision sensor.
6. Light-emitting diodes (LEDs): These components indicate the operational status of the CAR.

On the track

LED off: Indicates normal operation.

LED yellow:

- Blinks five times per second in a left curve.
- Blinks two times per second in a right curve.

LED red:

- Blinks one time per second if the charge status is 30% or less.
- Blinks two times per second if the charge status is 20% or less.
- Blinks five times per second if the charge status is 10% or less.
- Illuminates steadily if the CAR has an error.

In the charge lane

LED green: Illuminates or blinks one time per second if there is a charge voltage and the lithium battery is fully charged.

LED yellow:

- Illuminates steadily during charging.
- Blinks one time per second when the charge voltage is applied, but the lithium battery is no longer being charged (< 4 V).

LED red:

- Blinks one time per second if the charge status is 30% or less.
- Blinks two times per second if the charge status is 20% or less.
- Blinks five times per second if the charge status is 10% or less.
- Illuminates steadily if the CAR has an error.

7. Sample holder with clips: This component is nonremovable. The sample holder has four arms and is plastic, accommodates a standard sample tube, and holds the sample tube in a fixed, vertical position.

Figure 5: CAR (bottom view)



Legend:

1. Drive wheel: This component has electric drive with a rechargeable lithium battery, and is centrally installed and plastic. The electric drive enables individual driving on the track.
2. On/Off switch: This component is located at the rear of the CAR, and powers on and powers off the CAR. CARs are switched on only during installation.

NOTE: The on/off switch can be damaged due to inappropriate handling. To avoid component damage, only move the on/off switch if necessary.

3. Name plate: The name plate is located inside the module and is visible when the module cover is open.
4. Charging contacts: These components are located on the bottom of the CAR and are used to charge the rechargeable lithium battery of the electric drive.
5. Guiding pin: This component keeps the CAR in the guiding slot of the lane elements.
6. Sliders: These components push the CAR over the track.
7. Front underseal: This component contains the sliders, guiding pin, and permanent magnet, and is replaceable.
8. Drive operation sensor: This component receives signals from the active lane elements, which may include the following signals: Start, Stop, Curve, and Speed.

9. Permanent magnet: This component registers the CAR on the active lane element.

NOTE: If the charge status of the CAR is 10% or less and this status continues for more than 15 minutes, the CAR will be powered off.

Related information...

[CAR overview](#), page 40

[Sample tube specifications](#), page 80

[Start the GLP systems Track](#), page 88

Track Sample Manager overview

The Track Sample Manager (TSM) is the central software application of the GLP systems Track.

TSM is installed on a separate computer and is connected to the laboratory automation system (LAS) and the Track Workflow Manager (TWM). TSM provides the modules with sample-specific information and instructions. TWM receives orders from the laboratory information system (LIS), an external component that provides TWM with sample information. TWM relays the information from the LIS to TSM for sample routing.

TSM provides access to configuration parameters for the LAS. The configuration parameters control the routing of samples and CARs in detail.

TSM controls and monitors sample transport on CARs. CARs are used to route the samples to the connected modules. Modules inform TSM whether new samples have been placed on the LAS. Empty CARs must be routed to the appropriate points to load new samples onto the LAS.

TSM reports the location of the CAR on the track at defined locations. The user interface displays comprehensive status information from the communication of the CAR with active track elements such as switches, charge lanes, and stopping points. It also provides detailed statistics on the actions that have been performed. The sample ID is linked to the required sample route received from TWM. Assay information is not transmitted to TSM.

The following list provides key features of TSM:

- Configuration based on the provided track layout of the laboratory for a specific LAS
- Various options to adapt sample and CAR routing based on laboratory needs
- Status display of all active components of the LAS in list views and visual track schematics
- Statistics on performance, throughput, and system events
- Web-based application with a user interface that can be accessed from any workplace in the network by using a browser

Related information...

[Use or function](#), page 31

[Track Workflow Manager overview](#), page 45

[Control system](#), page 70

Track Workflow Manager overview

The Track Workflow Manager (TWM) uses an algorithm to translate individual sample orders into preanalytical processing steps and target destinations (target plan). Order input, test sequence, and results validation are managed through the laboratory information system (LIS) and middleware. The Track Sample Manager (TSM) controls the transportation of samples on CARs to their destinations (for example, modules and analyzers) along the laboratory automation system (LAS). The TWM is located between the LIS, middleware, and TSM, and has the following functions:

- Receives the orders from the LIS through the middleware
- Reports information about analyzers and their available tests
- Reports information about the modules installed on the LAS
- Computes sample routes according to customer-defined configuration for specific laboratory needs and requirements

The following list provides the key features of the TWM:

- Target plan creation for samples
- Customer-specific calculation of sample routing
- Customizable specification of laboratory requirements
- Ability to activate or deactivate one or more tests or instruments
- Web-based application with a user interface that can be accessed from any workplace in the network by using a browser
- Ability to receive the orders from the LIS through the middleware

Related information...

[Use or function](#), page 31

[Track Sample Manager overview](#), page 44

Input/Output Module overview

The Input/Output Module is used to load and unload samples to and from the laboratory automation system. The areas in the drawers can be configured to customer-specific needs.

The following configurations are available for the module:

- Input and output combined
- Input only
- Output only

Two types of output areas are available:

- Error area for samples with errors (for example, bar code reader error)
- Areas for customer-specific sorting

In addition, areas of the drawers can be configured as a sample output or can be configured for loading and unloading analyzer racks.

The following list provides the key features of the module:

- Processes a minimum of 900 capped samples per hour
- Allows module configuration for input and output combined, input only, or output only
- Allows customer-definable input areas
- Allows manual archiving

Related information...

[Use or function](#), page 31

[Input/Output Module design and function](#), page 46

Input/Output Module design and function

Drawers are used to load and unload samples on the Input/Output Module (IOM).

FlexRacks in the RackPorts can be configured as input or output areas on a customer-specific basis and hold the samples in an upright position.

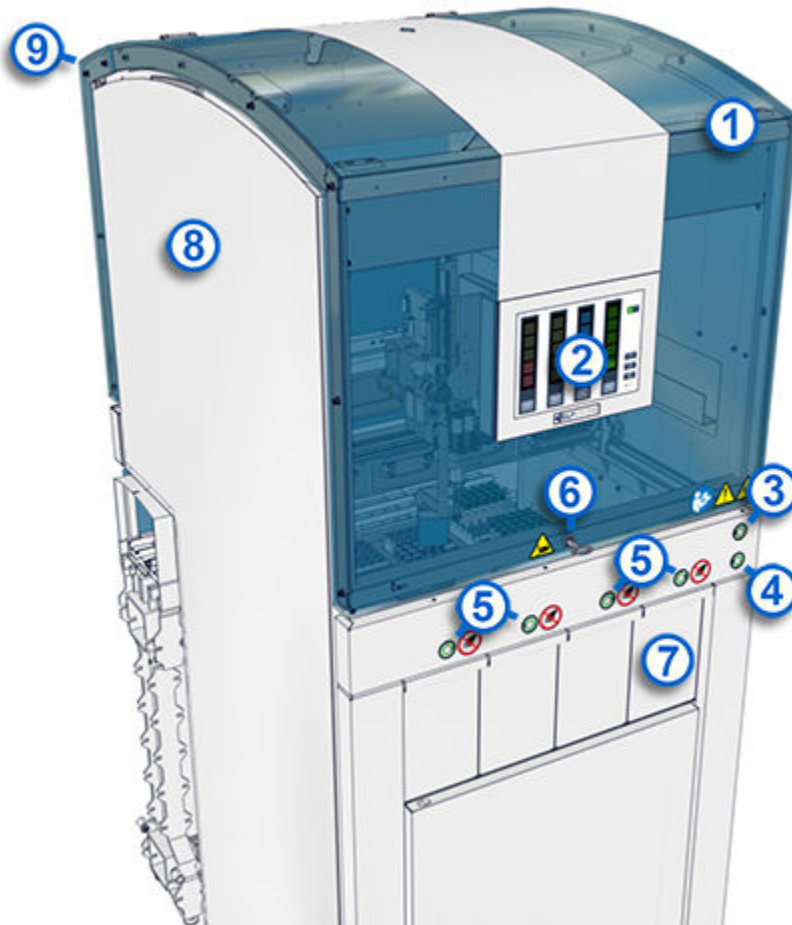
The IOM processes standard sample tubes of different sizes, capped or uncapped, and reads the sample IDs of the bar codes. The robot loads and unloads the CARs and FlexRacks with its gripper. When the robot moves a sample, the system reads the bar code and transmits it to the Track Sample Manager (TSM).

The exact location of the sample can be tracked on TSM.

For the input function, the robot removes the sample from the FlexRack and places it in a CAR. For the output function, the robot removes the sample from a CAR and places it in the FlexRack.

NOTE: Contact an Abbott Laboratories representative or an authorized service representative for more information about configuration.

Figure 6: Exterior view of the IOM



Legend:

1. Front module cover: This component protects the operator from injury and keeps the loading area free from dust. The cover can be opened from the front.
2. Monitor: This component is located on the front module cover. It functions as the central operating and display element.
3. Online/Offline push button with pause function: This component transitions the module status to Online, Offline, or Pause.

Online	The module is in automatic mode. The Online/Offline push button is illuminated steady green.
Offline	The module is in standby mode. The Online/Offline push button is illuminated steady yellow.

Pause

The module is briefly inactive. The Online/Offline push button is illuminated blinking green.

4. On/Off push button: This component powers on and powers off the module.
5. Drawer push buttons: These components are located on the front side of the module above the drawers. The push buttons open and close the drawers:
 - When the drawer is closed, the module is ready for operation. The drawer push button is illuminated steady green.
 - When the drawer is opening or closing, the drawer push button is illuminated blinking yellow.
 - When an error occurs, the opening and closing of the drawer stops. The drawer push button is illuminated steady red.



CAUTION: DO NOT REACH INTO DRAWERS. Injury or bodily harm can occur when accessing the module interior while the module is powered on. Do not access the drawers while they are opening or closing. Only load the samples when the drawers are fully open. The drawer push button blinks when it is unsafe to access the drawer.

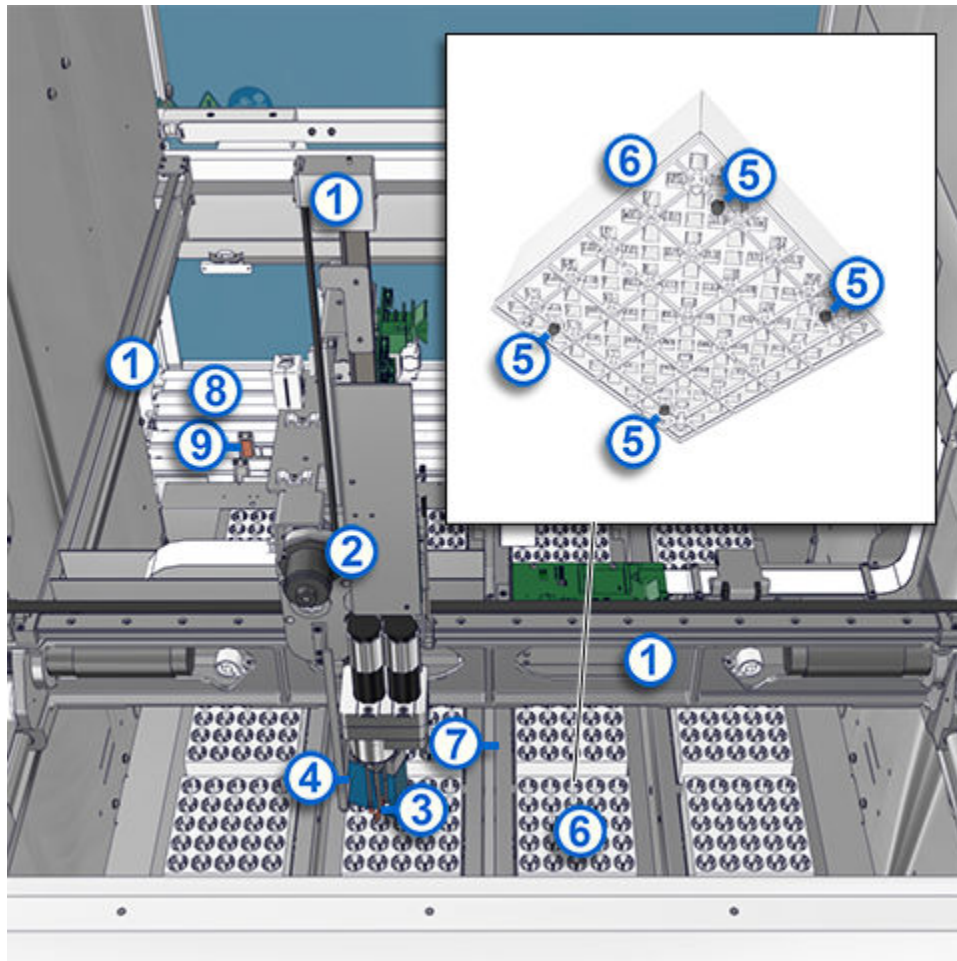
Never reach into the module through the drawers.

6. Unlock key: The unlock key unlocks the front and rear module covers.
7. Drawer: This component contains RackPorts and racks. Drawers can be opened individually on the front side of the module by using the corresponding push buttons or from the touchscreen user interface.
8. Housing: The upper part of the housing contains the loading area with drawers. The loading area is used to load and unload samples from the module. The bottom of the loading area is open at the rear and enables the gripper to access the samples in CARs.
9. Rear module cover: This component protects the operator from injury and keeps the loading area free from dust. The cover can be opened from the rear.



CAUTION: Do not reach inside. The rear module cover can be opened **only** with the unlock key. **Never reach into the module from the rear module cover. Exposure to potentially harmful crushing by the robots can occur.**

Figure 7: Interior view of the IOM

**Legend:**

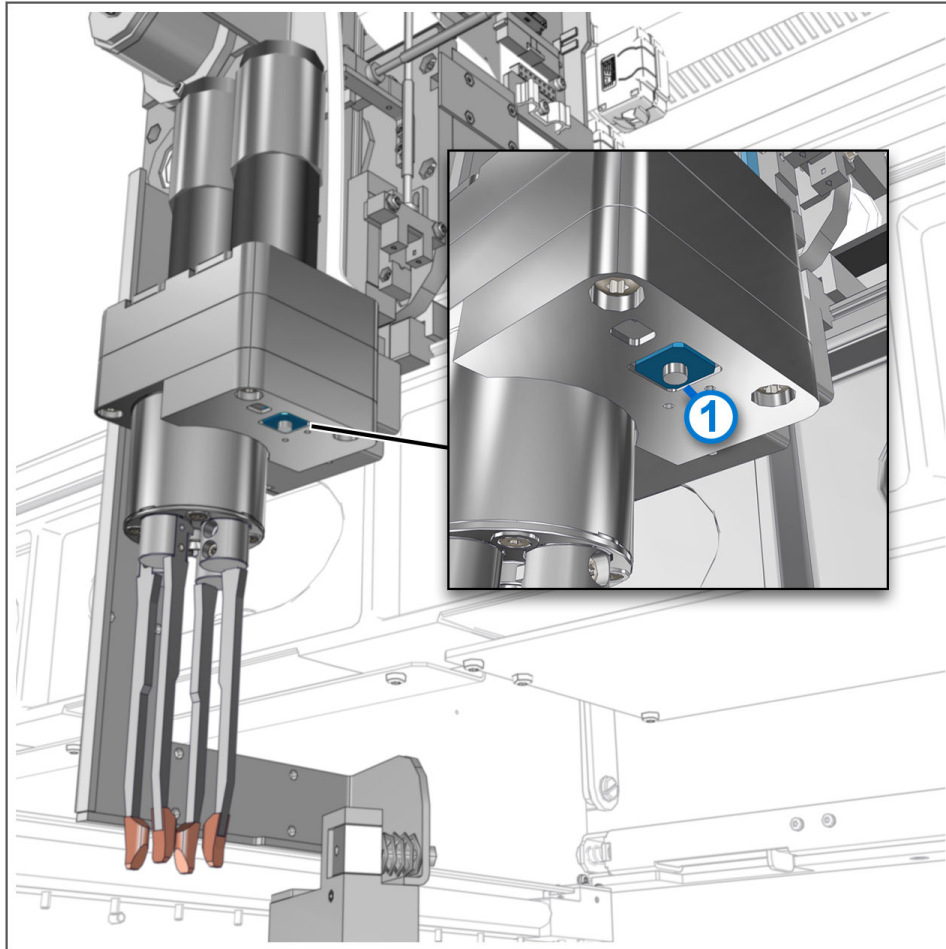
1. Linear axes: The linear axes are arranged at right angles to each other in the x-y-z direction and enable three-dimensional movement of the robot.
2. Robot: This component uses the gripper to load and unload CARs and racks.
3. Gripper: This component is used with the robot to load and unload CARs and racks.
4. Bar code reader: This component is located at the lower end of the robot. It reads the sample bar code and forwards the information to the control system.
5. Permanent magnets: These components secure FlexRacks on RackPorts.
6. FlexRacks: These components hold samples in an upright position.
7. RackPort: This component is a drawer insert that supports a rack.
8. Track: This component is the structure along which CARs move to transport samples to modules.
9. AccessPoint: One or two AccessPoints are located on the adjacent track. They stop and retain the CARs for loading and unloading.

Figure 8: Photoelectric sensors



Legend:

1. Photoelectric sensors: These components are located on the sides of the drawer inserts and form a light grid. They detect the loading status of RackPorts and any manual intervention in the drawer. They are used to stop the closing operation if an object or body part is placed between the drawers and the housing.

Figure 9: Tube release button**Legend:**

1. Tube release button: This component is located on the lower end of the robot gripper and is used for troubleshooting.

Related information...

[Input/Output Module overview](#), page 46

[Input](#), page 52

[Output](#), page 52

[Robot](#), page 52

[Throughput](#), page 52

[Control systems](#), page 53

[Operating element](#), page 53

[Bar code reader](#), page 53

Input

Input configuration of the Input/Output Module includes the following features:

- Manual input of samples by using racks, with configurable area assignment for different routes
- Input of samples in standard racks (FlexRacks) or by using analyzer racks
- Sample assignment (for example, tube type, fluid type, capped or uncapped, centrifuged or not centrifuged) according to customer specification
- Loading of samples to CARs from racks after sample identification by reading the bar code

Related information...

[Input/Output Module design and function](#), page 46

Output

Output configuration of the Input/Output Module includes the following features:

- According to the defined user requirements, the removal of the sample from the CAR followed by the reading of the sample bar code and, if required, the transport of the sample to the appropriate output area
- Distribution within racks according to customer specification
- Distribution in individual racks for manual archiving
- Automatic sorting of samples with error messages (for example, unreadable bar codes, no orders, or other errors) into specified error areas

Related information...

[Input/Output Module design and function](#), page 46

Robot

The robot transports samples into output and error areas on the Input/Output Module. During transport, the sample is aligned for the bar code to be readable by the modules and analyzers. The bar code is read at the start and end of transport.

Related information...

[Input/Output Module design and function](#), page 46

Throughput

A continuous supply of samples and the availability of CARs ensures optimum throughput. The Input/Output Module processes a minimum of 900 capped samples per hour.

Related information...

[Input/Output Module design and function](#), page 46

Control systems

Sensors on the Input/Output Module components monitor correct implementation, recognition, and compliance with safety requirements.

Recognition

- Loading status in the drawers
- RackPorts
- Bar code
- Tube diameter for transport by robot

Monitoring

Manual intervention in the robot work area

Related information...

[Input/Output Module design and function](#), page 46

Operating element

The operating element is used to configure modules according to user requirements. Use is similar for all modules.

The Input/Output Module includes the following options:

- Display of system messages and user interface for troubleshooting
- Area assignment for input and output
- Performance of service and maintenance work
- Display of module status

Related information...

[Input/Output Module design and function](#), page 46

Bar code reader

In accordance with Clinical and Laboratory Standards Institute (CLSI) document AUTO02-A2, a sample is identified by a bar code, which is read during transport to or from the CAR.

A maximum of four different bar code types can be read individually or in combination with each other:

- Codabar
- Code 39
- Code 128
- Interleaved 2 of 5

Samples with unrecognized bar codes are routed to a designated area.

**CAUTION: Incorrectly assigning a bar code may constitute a health hazard for patients.**

Illegible or incorrectly assigned bar codes cause incorrect patient results. Bar codes with checksums are recommended on the laboratory automation system.

NOTE: Contact an Abbott Laboratories representative or an authorized service representative to configure the bar code reader for different bar code types.

Related information...

Input/Output Module design and function, page 46

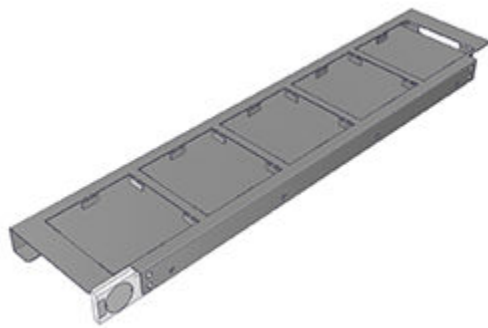
Sample bar code label requirements, page 79

RackPorts overview

RackPorts are used to position racks for sample tubes and pipettors. They can be used in the drawers of the modules. The RackPort (Standard) is intended for use with FlexRacks.

Radio-frequency identification (RFID) tags enable different configurations. RackPorts are equipped with RFID tags for automatic recognition on modules.

Figure 10: RackPort (Standard)



Related information...

[Use or function](#), page 31

FlexRacks overview

FlexRacks are designed for use on the Input/Output Module. One FlexRack can hold 25 sample tubes with a tube diameter of 10.5 mm to 18 mm.

Figure 11: FlexRack 25



Related information...

[Use or function](#), page 31

Introduction

For accurate test results and optimal system performance, the GLP systems Track must be correctly installed. After the system has been installed, it must be configured to meet individual laboratory requirements.

Related information...

Transportation, installation, disassembly, and disposal, page 58

Input/Output Module configuration, page 60

Transportation, installation, disassembly, and disposal

The GLP systems Track is transported and installed by an Abbott Laboratories representative or an authorized service representative.

After the laboratory automation system (LAS) has been installed, the individual components can no longer be moved. System relocation requires appropriate planning and an Abbott Laboratories representative or an authorized service representative to perform the work. Contact the distributor for more information.



CAUTION: Inappropriate transport. Track system components are heavy. Personal injury or damage to the track system is possible due to inappropriate transport. Transport of the track system should only be performed by an Abbott Laboratories representative or an authorized service representative. Contact the distributor for more information.



CAUTION: Personal injury or damage to the track system. Installation of the track system should only be performed by an Abbott Laboratories representative or an authorized service representative. Contact the distributor for more information.



CAUTION: Personal injury or damage to the LAS. Disassembly of the track system should only be performed by an Abbott Laboratories representative or an authorized service representative. The owner is obligated to dispose of the track system and all its components appropriately.



CAUTION: Inappropriate disposal. Personal injury or environmental damage may occur. Dispose of all individual track system components in compliance with the laws and guidelines applicable in the relevant country. Wear personal protective equipment when disposing of each component.



CAUTION: Biological RISKS. Track system components may expose the operator to potentially infectious material. Before track system components can be disposed, decontamination is required.



CAUTION: Risk of injury due to heavy loads. During installation, disassembly, or disposal of the track system, the modules may move unexpectedly and trap persons. While the track system is being installed, disassembled, or disposed, no unauthorized persons are permitted in the laboratory area. Be sure to move heavy loads slowly and carefully.



CAUTION: Risk of injury or property damage due to heavy loads. Track system components are heavy. Personal injury or damage to the track system or laboratory property is possible due to inappropriate installation. Ensure that the laboratory floor is structurally capable of supporting the load of the track. Installation of the track system should only be performed by an Abbott Laboratories representative or an authorized service representative. Contact the distributor for more information.

Related information...

[Installation procedures and special requirements](#), page 57

[Track installation](#), page 59

[Input/Output Module installation requirements](#), page 59

Track installation

Before the installation of the GLP systems Track, an Abbott Laboratories representative confirms that the site is prepared. The system location must meet environmental specifications and electrical requirements before the representative can install the system.

The representative unpacks, positions, and installs the system. During the installation, the representative performs the system setup and confirms that the system operates within the manufacturer's specifications.

After the installation, the customization or configuration of the system may be performed before any testing is initiated.

IMPORTANT: Incorrect installation can cause damage to the track.

Related information...

[Transportation, installation, disassembly, and disposal](#), page 58

Input/Output Module installation requirements

The Input/Output Module may only be installed indoors. The module is freestanding and is not fixed to the floor. Water connections are not required. Contact an Abbott Laboratories representative or an authorized service representative for more information about service requirements.

Related information...

[Transportation, installation, disassembly, and disposal](#), page 58

Input/Output Module configuration

Areas in the module drawers can be configured for sample input and output, loading and unloading racks, and a manual archive.

Related information...

[Installation procedures and special requirements](#), page 57

[Using drawers with FlexRacks](#), page 60

[Using racks](#), page 64

Using drawers with FlexRacks

Each FlexRack or drawer in the Input/Output Module can be subdivided into different areas. In this process, each area is assigned a designated usage.

Designated usage	Description
Error	The error area is used to load any samples with errors automatically. This process requires the operator to remove the samples manually, troubleshoot the causes of the errors, and return the samples to the input area.
Input	Samples manually placed into the input area are distributed by the laboratory automation system.
Output	Samples are automatically sorted into the respective, defined output areas. This process requires the operator to remove the samples manually.

Related information...

[Input/Output Module configuration](#), page 60

[Defining areas](#), page 60

[Create an area](#), page 61

[Configure an area](#), page 61

[Edit properties of an area](#), page 62

[View information about an area](#), page 63

[Delete an area](#), page 63

Defining areas

Input and output areas are defined first by creating the area on the touchscreen user interface. Then, each area is configured with a unique ID and color.

The Configuration screen displays options to create and configure areas.

NOTE: Settings may be configured only by trained laboratory personnel or by an Abbott Laboratories representative or an authorized service representative.

NOTE: The operator can define the colors.

Related information...

[Using drawers with FlexRacks](#), page 60

Create an area

Required module Offline
status

Perform this procedure to create an area in the module.

1. On the main menu, tap the **Configuration** button.
2. On the Configuration screen, tap **Area Types**.
3. On the Create Area screen, tap the area name for the required ID.
The virtual keyboard is displayed.
4. In the **Id** text box, type the name of the area.
5. Tap the **Enter** key to confirm the selection.
6. Tap the color field for the area to be created.
The range of available colors is displayed.
7. Select an area color by performing one of the following steps:
 - Tap an area color in the range of available colors.
 - In the **Color** text box, enter the hex values.
8. To assign additional area names or colors, repeat steps 3, page 61 through 7, page 61.
9. To save the edits to the areas, tap the **Right Arrow** button.
10. When the **Update Area Types** message is displayed, tap **OK** to acknowledge the update notification.
The Configuration screen is displayed.
11. Switch the module online.

Related information...

[Using drawers with FlexRacks](#), page 60

Configure an area

Required module Offline
status

Perform this procedure to configure an area in the module.

1. On the main menu, tap the **Configuration** button.
2. On the Configuration screen, tap **Areas**.
3. On the Configure Areas screen, tap **new**.
The **step 1** tab of the Properties menu is displayed.
4. In the list on the left side of the Properties menu, tap the color of the area to configure.
The selected area is displayed in the area display.
5. Tap the drawer for the area to be defined.
The selected drawer is displayed in the component display.
6. In the **rack start** and **rack end** boxes, tap the **Up Arrow** and **Down Arrow** buttons to define the FlexRack position inside the drawers.
The positions are arranged from 1 to 5 from the bottom to the top of the drawer.
7. In the **position start** and **position end** boxes, tap the **Up Arrow** and **Down Arrow** buttons to define the positions inside the FlexRacks.
The positions are arranged from 1 to 25 from the lower right (position 1) to the upper left (position 25) of the FlexRack.
8. To confirm the settings and move to the **step 2** tab, tap **Next**.
9. In the **Characteristics** list in the **step 2** tab, tap **usage** to open the usage list.
NOTE: The **Characteristics** list has information about the tube type, such as capped, priority, and fluid type.
10. In the **usage** list, tap the appropriate usage for the area to configure.
11. To confirm the settings and move to the **step 3** tab, tap **Next**.
NOTE: Only an Abbott Laboratories representative or an authorized service representative may configure additional settings.
12. To save the configuration settings, tap **Update**.
To cancel the configuration settings, tap **Cancel**.
13. When the **Update area** message is displayed, tap **OK** to acknowledge the update notification.
The Configure Areas screen is displayed.
14. Switch the module online.

Related information...

[Using drawers with FlexRacks](#), page 60

Edit properties of an area

Required module status	Offline
-------------------------------	---------

Perform this procedure to edit the properties of an area in the module.

1. On the main menu, tap the **Configuration** button.
2. On the Configuration screen, tap **Areas**.
3. On the Configure Areas screen, tap **edit** in the row of the area to edit.
The **step 1** tab of the Properties menu is displayed.
4. In the list on the left side of the Properties menu, tap the color of the area to edit.
The selected area is displayed in the area display.
5. Edit the selected area.
6. To save the configuration settings, tap **Create**.
To cancel the configuration settings, tap **Cancel**.
7. When the **Update area** message is displayed, tap **OK** to acknowledge the update notification.
8. Tap the **Exit** button.
The Configure Areas screen is displayed.
9. Switch the module online.

Related information...

[Using drawers with FlexRacks](#), page 60

View information about an area

Perform this procedure to view information about an area in the module.

1. On the main menu, tap a defined area.
The area information is displayed.
2. Tap **OK** to close the informational message.

Related information...

[Using drawers with FlexRacks](#), page 60

Delete an area

Required module status Offline

Perform this procedure to delete an area from the module.

1. On the main menu, tap the **Configuration** button.
2. On the Configuration screen, tap **Areas**.
3. On the Configure Areas screen, tap **delete** in the row of the area to delete.

4. When the confirmation message is displayed, tap **yes** to delete the area.
The area is deleted.
5. When the **Delete area** message is displayed, tap **OK** to acknowledge the update notification.
6. Tap the **Exit** button.
The Configure Areas screen is displayed.
7. Switch the module online.

Related information...

[Using drawers with FlexRacks](#), page 60

[Place the module online](#), page 165

[Place the module offline](#), page 165

Using racks

Drawer areas in the Input/Output Module can be used to load and unload sample tubes to store.

Samples can be inserted into the drawers individually in FlexRacks. Drawers can be opened independently of each other.

Rack IDs can be assigned either automatically by the module or manually by the operator. The setting to assign rack IDs automatically or manually is configured by an Abbott Laboratories representative or an authorized service representative.

NOTE: Areas within the RackPorts are configured by an Abbott Laboratories representative.

Related information...

[Input/Output Module configuration](#), page 60

[Replace a rack and set the rack ID](#), page 64

[Use a drawer to load or unload from racks](#), page 65

Replace a rack and set the rack ID

Prerequisite The rack ID handling feature is set to manual.

Perform this procedure to replace a rack and set a rack ID on the module.

1. Open the drawer.
2. Remove the rack.
3. Insert the new rack.
4. Close the drawer.

The New Rack-ID? screen is displayed.

Section 2

5. Tap **Yes, the RackId has changed**.
6. Tap the **Right Arrow** button to go to the next screen.
7. On the Enter RackId screen, type the new rack ID.
8. To save the rack ID and exit the screen, tap the **Right Arrow** button.

NOTE: If the drawer is opened and closed without replacing the rack, tap the **No, the RackID has not changed**. option on the New Rack-ID? screen. Tap the **Right Arrow** button to exit the screen and continue using the assigned rack ID.

Related information...

[Using racks](#), page 64

Use a drawer to load or unload from racks

Prerequisite	A drawer has been configured in accordance with the service requirements.
---------------------	---

Required module status	Online
-------------------------------	--------

Perform this procedure to use a drawer to load or unload a rack in the module.

NOTE: The setting to configure RackPorts and their designated usage must be configured by an Abbott Laboratories representative or an authorized service representative.

1. Open the drawer.
2. Load or unload a rack on the RackPort.
3. Close the drawer.

Related information...

[Using racks](#), page 64

NOTES

Introduction

The GLP systems Track uses multiple analytical instruments and control system components to automate sample processing in laboratories.

Related information...

General operation, page 68

Control system, page 70

Track Sample Manager functional description, page 71

Track Workflow Manager functional description, page 75

General operation

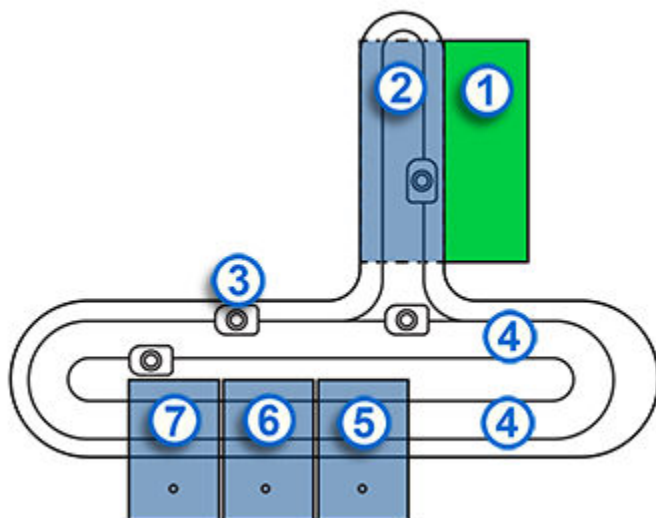
Autonomous transport vehicles, referred to as CARs, are used to distribute the samples. The CARs move toward the various modules and analyzers by using right-hand traffic paths on the track.

The samples are supplied to the laboratory automation system (LAS) by input modules such as the Input/Output Module (IOM). When a robot-mounted gripper picks up a sample, the bar code is read by a bar code reader and forwarded to an interface referred to as the Track Sample Manager (TSM). TSM uses the sample ID and the order data to calculate the optimum route to the individual analyzers.

TSM controls the CARs according to the received information. TSM uses the CAR ID to locate each CAR and each sample in the LAS.

Changes to the analysis order are supported in real time. Samples may be requested at any time. After the analysis processes have been completed, the samples are retained for a defined period of time for potential additional orders, are disposed, or are placed into racks for manual removal from the IOM.

Figure 12: Example of an LAS design



Legend:

1. Analyzers
2. Sample Access Line
3. CAR
4. Track
5. IOM configured as an output module
6. Aliquot Module
7. IOM configured as an input module

Related information...

Principles of operation, page 67

Control system

The control system comprises the following components:

- Higher-level laboratory software, laboratory information system (LIS), including middleware
- Track Sample Manager (TSM)
- Track Workflow Manager (TWM)

NOTE: As customer-specific systems, the higher-level laboratory software and the middleware are not supplied with the GLP systems Track.

TSM is the central control unit and enables communication between the individual track system components and TWM. The following list describes the function of the control system:

LIS	Higher-level laboratory software.
Middleware	The interface between the laboratory automation system (LAS) and the laboratory software. Information about the samples is entered in the middleware and forwarded to TWM.
TSM	Controls sample distribution in the LAS, communicates with the segment controllers and module controllers, and locates all CARs and samples at all times.
Module controller	Controls the processes in the module and communicates with TSM.
Segment controller	Manages the communication between the active lane elements and TSM. The track can have several segment controllers.
Active lane element	Communicates with the segment controller from its track segment. A track segment can contain a maximum of 40 active lane elements (for example, switch, AccessPoint, PassPoint, or ChargePoint).
TWM	Translates individual sample orders into preanalytical and postanalytical processing steps by using an algorithm.

Related information...

[Principles of operation](#), page 67

[Track Sample Manager overview](#), page 44

Track Sample Manager functional description

Key functions of the Track Sample Manager are workflow and system monitoring.

Related information...

Principles of operation, page 67

Workflow, page 71

System monitoring, page 73

Workflow

The Track Sample Manager (TSM) communicates with all modules and active elements that are part of the GLP systems Track to transport samples from a start point to a target point and to route empty CARs to the designated location.

TSM controls the sample workflow, which requires the following items:

- Sample and CAR routing
- Track layout
- Routing strategy
- Routing instructions from the Track Workflow Manager

Related information...

Track Sample Manager functional description, page 71

Sample and CAR routing, page 71

Track layout, page 72

Routing strategy, page 72

Track Workflow Manager interface, page 72

Sample and CAR routing

The Track Sample Manager provides the following main functions of sample and CAR routing:

- Routes CARs through the track system.
- Instructs modules to process a sample.
- Stores information on all processing steps of the samples.
- Monitors track and module statuses on the user interface.

Related information...

Workflow, page 71

Track layout

The Track Sample Manager (TSM) is configured with the track layout of the laboratory track. The track layout is designed with the track designer and then is imported into TSM. All information on the module and track routes used is available.

Related information...

[Workflow](#), page 71

Routing strategy

On the Track Sample Manager, the routing strategy includes the following components:

- Samples are assigned to the target areas.
NOTE: Area names can be specific to a single module or a module type.
- Loaded CARs are distributed based on the following criteria:
 - Analyzer selection (throughput versus uniform)
 - Sample prioritization (low, normal, or high)
 - Buffering for preferential processing of high-priority samples
- Empty CARs are provided based on the following criteria:
 - Module prioritization
 - High-priority park lanes
- Circles prevent individual segments from being overfilled.
- Disciplines ensure that samples remain in certain track areas.

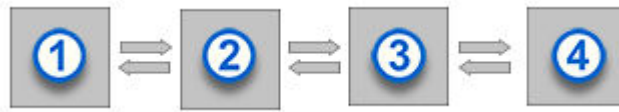
Related information...

[Workflow](#), page 71

Track Workflow Manager interface

The workflow is structured by instructions that the Track Sample Manager (TSM) receives from the Track Workflow Manager (TWM). TWM is an external component that connects TSM to the laboratory information system (LIS):

- TWM provides target data and instructions for samples.
- TSM returns arrival information and processing results.
- A simulation environment is available for easier integration.
- Information on available LIS integrations is provided by request.

Figure 13: Flowchart of communication paths**Legend:**

1. LIS with middleware
2. TWM
3. TSM
4. GLP systems Track

Related information...

[Workflow](#), page 71

[Communication paths](#), page 33

System monitoring

The Track Sample Manager monitors the following items:

- Active track layout components
- Active track elements, modules, and CARs
- Track performance statistics
- System log events
- Status package for sample and CAR routing

Related information...

[Track Sample Manager functional description](#), page 71

[System log](#), page 73

[Status package for sample and CAR routing](#), page 73

System log

The system log of the Track Sample Manager displays all events in the system that require operator attention.

Related information...

[System monitoring](#), page 73

Status package for sample and CAR routing

The status package for sample and CAR routing on the Track Sample Manager has the following features:

- Status monitor displays

- Individually configurable by the operator
- 55-inch LED display with Set-Top Box
- Usable with VESA wall mount

Related information...

[System monitoring](#), page 73

Track Workflow Manager functional description

The Track Workflow Manager (TWM) is a software interface between the laboratory information system and the Track Sample Manager of the GLP systems Track.

TWM translates individual sample orders into preanalytical, analytical, and postanalytical processing steps by using an algorithm.

Related information...

Principles of operation, page 67

NOTES

Introduction

Before operating the GLP systems Track, become familiar with system performance characteristics, throughput capabilities and capacities, specifications, and requirements for samples, temperature, waste, and clearance.

Related information...

Technical data, page 78

Technical data

Technical documents for a customized GLP systems Track are distributed to the owner in separate attachments. The following separate documents are available:

- Track layout
- Energy plan
- Service documentation
- Supplier documentation (optional)

Related information...

Performance characteristics and specifications, page 77

Environmental specifications and requirements, page 78

Sample bar code label requirements, page 79

Sample tube specifications, page 80

Sample processing specifications, page 83

Track electrical specifications, page 83

CAR technical data, page 84

Track Sample Manager technical data, page 84

Track Workflow Manager technical data, page 85

Input/Output Module technical data, page 85

Environmental specifications and requirements

Table 5: Environmental specifications and requirements

Relative humidity during operation	30% to 80%, noncondensing
Acoustic level	Maximum of 65 dBA
Placement	Install indoors only.
Storage and transport	• Keep dry. • Fragile: Handle with care.
Ambient temperature during operation	15°C to 30°C

Related information...

Technical data, page 78

Sample bar code label requirements

Table 6: Sample bar code label requirements

Bar code	• Approved: – Matte paper – Maximum of one readable bar code per sample tube (excluding sample labels) • Not approved: – Gloss or coated paper – More than one bar code per sample tube (excluding sample labels)
Bar code label	• Maximum of two bar code labels per sample tube: Maximum 0.5 mm if the manufacturer printed the sample tube directly (that is, without using paper or similar) • Maximum of one bar code label per sample tube: Maximum 0.5 mm if the manufacturer did not print the sample tube directly (that is, used paper or similar) NOTE: Bar code labels should meet the recommended guidelines and should be correctly affixed to sample tubes in accordance with CLSI document AUTO2-A2: Laboratory Automation: Bar Codes for Specimen Container Identification. IMPORTANT: Incorrect bar code label placement or attachment on sample tubes may cause material damage when CARs are loaded and unloaded. For example, the sample tube may remain stuck in the gripper or the CAR may be lifted together with the sample. Observe the appropriate bar code label placement or attachment on the sample tubes.
Symbology	The following symbologies can be used on the Input/Output Module: • Codabar • Code 39 • Code 128 • Interleaved 2 of 5

Related information...

[Technical data](#), page 78

[Sample tube specifications](#), page 80

[Sample processing specifications](#), page 83

[Bar code reader](#), page 53

[Load samples into FlexRacks](#), page 169

Sample tube specifications

Table 7: Sample tube specifications

Tube type	• Approved: Rounded bottom • Not approved: – Flat bottom – Pediatric – Cone bottom – Sample cup – Tube with sample cup – Ridged lip
Tube material	• Approved: – PET Polyethylene terephthalate – PP Polypropylene – PS Polystyrene – PC Polycarbonate • Not approved: Glass
Tube height	• Uncapped: 60 mm to 105 mm • Capped: 60 mm to 110 mm
Tube diameter	• Uncapped: 10.5 mm to 16 mm • Capped: 11.5 mm to 18 mm with at least 1 mm overhang of cap over tube external diameter NOTE: Maximum diameters including two additional bar code labels increased by 0.5 mm.
Cap type	• Approved: Safety cap (for example, for vacuum system) • Not approved: – Cap with flap – Rubber stopper closure – Cap with irregular top edge – Archiving cap
Cap diameter	11.5 mm to 18.0 mm NOTE: External diameter of the cap is minimally 1 mm greater than the tube.
Cap height	Minimum of 5 mm
Sample tube fill level	Maximum fill level: Distance between sample material surface and top rim of tube is greater than 15 mm.  CAUTION: Do not exceed the maximum fill level of the sample tube. Exceeding the maximum fill level may cause components to become contaminated by sample matter. Infected sample matter that leaks from the system may expose the operator

	to infections due to skin contact with the sample matter.
--	---

Additional sample tube types must be clarified with the device manufacturer and Abbott Laboratories. For questions or use of formats that are not specified in this manual, contact an Abbott Laboratories representative or an authorized service representative.

Table 8: Greiner Bio-One MiniCollect Microtubes

Approved	• Diameter: 13 mm • Height: 75 mm • MiniCollect Microtube is firmly connected to carrier tube (for children) and can be used on the Input/Output Module.
Not approved	MiniCollect Microtube and carrier tube are separated. For example: • Serum 450533 • EDTA 450530 • Carrier tube 450417 Otherwise, no processing can be performed on the laboratory automation system (LAS).



CAUTION: Risk of injury due to incorrect use of sample tubes. Incorrectly used sample tubes can cause gripper malfunctions. Spilled sample matter can cause contamination and severe injuries to the operator. Inadequate sample volume in sample tubes causes delays in diagnosis and treatment of patients.

- Only use sample tubes that are approved for the LAS.
- Immediately clean any contaminated areas of the LAS by using a laboratory-grade surface disinfectant.
- If a sample is spilled, ensure that the sample volume in the sample tube is adequate to perform the remaining tests.

Figure 14: Sample tubes not approved



Legend:

1. Flat bottom
2. Pediatric
3. Cone bottom
4. Sample cup
5. Tube with sample cup
6. Ridged lip

Figure 15: Sample tube caps not approved



Legend:

1. Cap with flap
2. Rubber stopper closure
3. Cap with irregular top edge
4. Archiving cap

Related information...

[Technical data](#), page 78

[Sample bar code label requirements](#), page 79

[Sample processing specifications](#), page 83

[CAR design and function](#), page 40

[Input/Output Module technical data](#), page 85

[Input/Output Module safety](#), page 192

[Load samples into FlexRacks](#), page 169

[Basic safety](#), page 185

Sample processing specifications

Due to specific sample processing possibilities on the modules of the GLP systems Track and due to manufacturer specifications of the connected analyzers, there are deviations and restrictions for sample processing.

Table 9: Sample processing specifications

Approved modules and analyzers for uncapped samples	• Aliquot Module • SAL Alinity ci-series
--	--

Related information...

[Technical data](#), page 78

[Sample bar code label requirements](#), page 79

[Sample tube specifications](#), page 80

Track electrical specifications

Table 10: Track electrical specifications

System current/track	3-phase alternating current Maximum 400 V 25 Amperes per phase
Voltage/track	220 VAC to 230 VAC per phase
Frequency/track	50 Hz/60 Hz

Electrical safety parameters: • Installation category • Pollution degree NOTE: Electrical safety parameters have no bearing on performance.	II (overvoltage category) 2
--	--------------------------------

Related information...

[Technical data](#), page 78

CAR technical data

Table 11: CAR technical data

Minimum driving time per rechargeable lithium battery charge	Approximately 8 h
Maximum charging time	180 min
Speed profiles	• Slow speed: 50 mm/s • Normal speed: 150 mm/s • High speed: 250 mm/s • Hyperspeed: 350 mm/s

Related information...

[Technical data](#), page 78

Track Sample Manager technical data

Table 12: Track Sample Manager (TSM) technical data

Platform	Java Enterprise Edition (for GlassFish application servers)
Database	PostgreSQL
Operating system	Suse Linux Enterprise operating system
Supported hardware environment NOTE: Server hardware is not included in the scope of delivery.	Various (for example, HPE ProLiant ML110 Gen10 - Xeon Silver, 8 Cores)

NOTE: Contact an Abbott Laboratories representative or an authorized service representative for more information about TSM technical data.

Related information...

[Technical data](#), page 78

Track Workflow Manager technical data

Table 13: Track Workflow Manager (TWM) technical data

Platform	Java Enterprise Edition (for GlassFish application servers)
Database	PostgreSQL
Operating system	Suse Linux Enterprise operating system
Supported hardware environment NOTE: Server hardware is not included in the scope of delivery.	Various (for example, HPE ProLiant ML110 Gen10 - Xeon Silver, 8 Cores)

NOTE: Contact an Abbott Laboratories representative or an authorized service representative for more information about TWM technical data.

Related information...

[Technical data](#), page 78

Input/Output Module technical data

Table 14: Input/Output Module technical data

Throughput	Minimum of 900 capped samples per hour NOTE: The specified performance of the module is based on measurements taken in a given test environment. The actual performance may vary significantly, depending on the use scenario of a track system.
Capacity	Four drawers with 125 sample tubes each for 500 sample tubes total when a RackPort (Standard) is used
Dimensions	88 cm (width) x 103 cm (depth) x 200 cm (height)
Floor requirement	500 kg/m ²
Acoustic level	Maximum of 65 dBA
Electrical specifications: • Supply voltage • Supply frequency • Power NOTE: Electrical lines are routed in the power ducts of the GLP systems Track.	220 V to 230 V 50 Hz/60 Hz • Power typical 105 W • Power maximum 250 W • 300 Volt-Ampere maximum

NOTE: The name plate is located inside the module and is visible when the module cover is open. To open the module cover, the module status must be Offline.

Related information...

Technical data, page 78

Sample tube specifications, page 80

Open and close the front and rear module covers, page 160

Introduction

This section provides instructions on how to perform normal operating procedures on the GLP systems Track.

Before operating the system, become familiar with hardware components of the system and with fundamental principles of the touchscreen user interface.

Related information...

Start the GLP systems Track, page 88

Shut down the GLP systems Track, page 89

Perform an emergency shutdown, page 90

Log on to the Track Sample Manager (TSM), page 92

Log on to the Track Workflow Manager (TWM), page 94

Unlock and lock the track hoods, page 96

Track Sample Manager user interface, page 98

Track Workflow Manager user interface, page 136

Input/Output Module operation, page 160

Start the GLP systems Track

Prerequisite Front and rear module covers must be closed and locked.

Perform this procedure to start the GLP systems Track.

1. Verify that all CARs are located in the charge lanes and are being charged.
2. Verify that the track is free of any foreign objects.
3. Open the Track Sample Manager (TSM).
4. Ensure that the Track Workflow Manager (TWM) is running.
5. Ensure that a connection between TSM and TWM is established.
6. Use the On/Off push buttons to power on the modules.

Related information...

[Operating instructions](#), page 87

[CAR design and function](#), page 40

[Troubleshooting](#), page 209

[Log on to the Track Sample Manager \(TSM\)](#), page 92

[Log on to the Track Workflow Manager \(TWM\)](#), page 94

Shut down the GLP systems Track

Prerequisite Verify that no additional samples are being distributed.

Perform this procedure to shut down the GLP systems Track.

1. Leave the Track Sample Manager (TSM) powered on.
2. Use the On/Off push buttons to power off the modules.
3. Verify that all CARs are located in the charge lanes and are being charged.

NOTE: The individual modules are powered off. The computer on which TSM is installed should remain powered on.

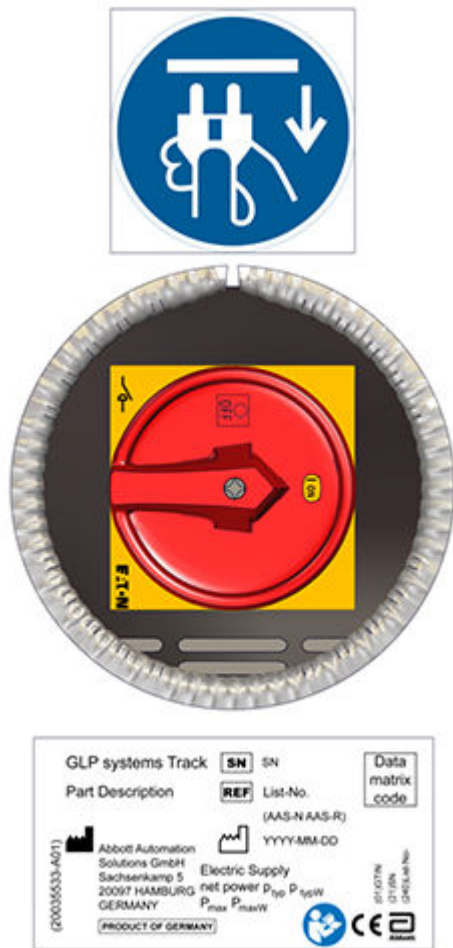
Related information...

[Operating instructions](#), page 87

Perform an emergency shutdown

Perform this procedure to shut down the system when an emergency situation occurs.

1. Locate the emergency disconnect switch at the rear of the track for each AC wall input line.
2. Observe the switch in the on position.



3. Turn the switch counterclockwise to the off position.



Related information...
[Operating instructions](#), page 87

Log on to the Track Sample Manager (TSM)

Prerequisite

Web access is configured on a workstation in the laboratory with access to the Track Sample Manager (TSM).

NOTE: The configuration of the customer network is performed by an Abbott Laboratories representative or an authorized service representative.

Perform this procedure to log on to TSM.

1. Launch the web browser.

NOTE: TSM supports the following browsers:

- Microsoft Edge
- Mozilla Firefox
- Google Chrome

Use of the most recent browser version with security patches is recommended. Comply with the information technology requirements of the facility.

2. Type the appropriate user-defined uniform resource locator (URL) in the address bar of the web browser:
 - If the track system uses a single-server setup where TSM and Track Workflow Manager (TWM) are housed on the same server, type the following URL to access TSM: `http://<GLP Firewall WAN IP>:7000/tsm-web/`
 - If the track system uses a dual-server setup where TSM and TWM are housed on separate servers, type the following URL to access TSM: `http://<GLP Firewall WAN IP>:9000/tsm-web/`

NOTE: The port number (9000, 8000, or 7000) used depends on the server setup of the track system.

3. Press the **Enter** key.
4. On the TSM start page, tap the preferred language in the **START TSM** list.

NOTE: Operators are prompted to select the language when logging on for the first time. To modify the language selection after the language was selected, enter the customized URL again.

5. In the **Authentication Required** window, type the user name and password.
6. Tap **OK** to display the TSM main menu.

NOTE: Operators should completely log off from the web user interface after each session. To log off completely, close the entire web browser.

Related information...

Operating instructions, page 87

Main menu screen element descriptions (TSM), page 100

Start the GLP systems Track, page 88

Log on to the Track Workflow Manager (TWM)

Prerequisite

Web access is configured on a workstation in the laboratory with access to the Track Workflow Manager (TWM).

NOTE: Workstation system requirements are specified in the service manuals for Track Sample Manager (TSM) and TWM operating systems.

NOTE: The configuration of the customer network is performed by an Abbott Laboratories representative or an authorized service representative.

Perform this procedure to log on to TWM.

1. Launch the web browser.

NOTE: TWM supports the following browsers:

- Microsoft Edge
- Mozilla Firefox
- Google Chrome

Use of the most recent browser version with security patches is recommended. Comply with the information technology requirements of the facility.

2. Type the appropriate user-defined uniform resource locator (URL) in the address bar of the web browser:

- If the track system uses a single-server setup where TSM and TWM are housed on the same server, type the following URL to access TWM: `http://<GLP Firewall WAN IP>:7000/re-web/`
- If the track system uses a dual-server setup where TSM and TWM are housed on separate servers, type the following URL to access TWM: `http://<GLP Firewall WAN IP>:8000/re-web/`

NOTE: The port number (9000, 8000, or 7000) used depends on the server setup of the track system.

3. Press the **Enter** key.
4. On the TWM start page, tap the preferred language in the **START** list.

NOTE: Operators are prompted to select the language when logging on for the first time. To modify the language selection after this, enter the customized URL again.

5. In the **Authentication Required** window, type the user name and password.
6. Tap **OK** to display the TWM main menu.

NOTE: Operators should completely log off from the web user interface after each session. To log off completely, close the entire web browser.

Related information...

Operating instructions, page 87

Main menu screen element descriptions (TWM), page 137

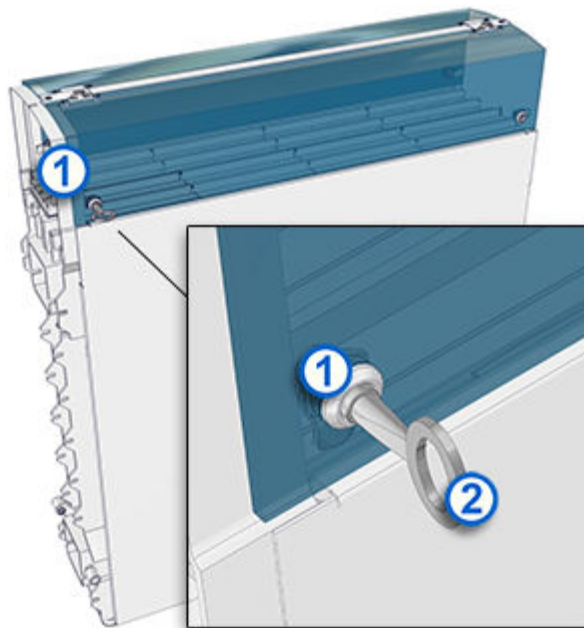
Start the GLP systems Track, page 88

Unlock and lock the track hoods

Required materials Unlock key

Perform this procedure to unlock and lock the track hoods.

1. To unlock the track hood, insert the unlock key [2] into the lock mechanism [1] at each end of the track hood and turn.



2. Open the track hood.



3. To lock the track hood, close the track hood.
4. Insert the unlock key [2] into the lock mechanism [1] at each end of the track hood and turn.

Related information...

[Operating instructions](#), page 87

[Track overview](#), page 34

[Track section](#), page 34

[Track maintenance checks](#), page 196

Track Sample Manager user interface

The Track Sample Manager (TSM) user interface is available after the operator logs on.

Four standard user access levels are available on TSM that are assigned to the corresponding groups. TSM allows configuration for four types of user roles:

Service	Abbott Laboratories representative or authorized service representative
Administrator	A well-trained user who is responsible for administrating the track system
Operator	Most general users of TSM
Monitor	A user who can view configured monitoring views

NOTE: The following sections about roles and permissions, the main menu, and the **Track / RE** tab describe the most important functions of TSM. These functions vary based on the user role of service, administrator, or operator. This manual describes only the functions that are relevant to the operator.

Related information...

[Operating instructions](#), page 87

[Roles and permissions \(TSM\)](#), page 98

[Main menu screen \(TSM\)](#), page 99

Roles and permissions (TSM)

Table 15: Roles

User name	Group	Description
service	Service	Abbott Laboratories representative or authorized service representative
admin	Administrator	Local administrator
operator	Operator	Track operator
monitor	Monitor	User with monitoring view only

Table 16: Permissions

Function or menu item	Service	Administrator	Operator
Track / RE	x	o	o

Function or menu item	Service	Administrator	Operator
		The following functions are unavailable: - Controller - Segment Controller - Track element status tab: Enable/Disable track elements - Controller - Segment Controller - AccessPoint configuration tab: Disable configuration settings - Controller - Segment Controller - Switch configuration tab: Disable configuration settings - Controller - Segment Controller - All tabs: Reset configuration option	The following functions are unavailable: Module Controller Maintenance tab - Changing the name of a track circle - Clearing the messages for the Routing Engine - Changing the operation modes
Samples	x	x	x
CARs	x	x	x
Messages	x	x	-
Admin	x	o	-
		- No access rights for Parameters - Service - Read-only access for Tubes tab	

x: accessible

o: partially accessible

-: not accessible

Related information...

[Track Sample Manager user interface](#), page 98

Main menu screen (TSM)

From the main menu of the Track Sample Manager, the operator can perform the following functions:

- View the current operational status of the laboratory automation system.
- View statuses for recovery backup, sample cleanup, and message cleanup.
- Modify statistical criteria for track elements.
- View connections to the Track Workflow Manager.
- Search for samples.
- Remove manually removed samples.

- Request to send samples to an output area.
- Request to send CARs to a maintenance lane.

Related information...

[Track Sample Manager user interface](#), page 98

[Main menu screen element descriptions \(TSM\)](#), page 100

[Track / RE tab \(TSM\)](#), page 101

[Samples tab \(TSM\)](#), page 118

[CARs tab \(TSM\)](#), page 130

Main menu screen element descriptions (TSM)

After the operator successfully logs on to the Track Sample Manager (TSM), the main menu is displayed with the following screen elements.

Elements

Language	Displays the language selected.
User name	Displays the operator or administrator logged on.
Log off button 	Logs off from TSM.
Logo button	Refreshes the screen or returns to the main menu from any screen.
Track / RE button	Navigates to the Track / RE tab.
Samples button	Navigates to the Samples tab.
CARs button	Navigates to the CARs tab.
Messages button	Navigates to the Messages tab. NOTE: The Messages button is viewable only by the service or administrator user access level.
Admin button	Navigates to the Admin tab. NOTE: The Admin button is viewable only by the service or administrator user access level.

Overview area

User	Displays the operator or administrator logged on.
-------------	---

Track	Displays the track layout document name.
TSM version	Displays the TSM version.
Operation mode	Displays the current operational status.
Local time	Displays the time and time zone settings.
License	Displays the license for TSM.
Recovery backup status	Displays the recovery backup status. If the recovery backup status is red, the configuration in TSM has been changed since the last recovery backup by using the TSM setup user interface. NOTE: If the recovery backup status remains red, contact an Abbott Laboratories representative or an authorized service representative.
Sample cleanup status	Displays the sample cleanup status. If the sample cleanup status is red, the status displays the number of samples not deleted. If the sample cleanup status does not change back to green after a few days, contact an Abbott Laboratories representative or an authorized service representative.
Message cleanup status	Displays the message cleanup status.

Related information...

[Main menu screen \(TSM\)](#), page 99

[Log on to the Track Sample Manager \(TSM\)](#), page 92

Track / RE tab (TSM)

On the **Track / RE** tab on the Track Sample Manager (TSM), the operator can perform the following functions:

- View a list of all active track elements, modules, and CARs.
- View information about the CARs and track circles.
- View a track layout illustration with status information on the individual active components.
- View track performance analyses and modify the statistical criteria for track elements.
- View the version numbers of segments and modules, and the version numbers and operations data of CARs.

- View the incoming and outgoing connection information between the Track Workflow Manager (TWM) and TSM, and the status of TWM.
- View the current operation mode of TSM.

Related information...

Main menu screen (TSM), page 99

Track / RE tab element descriptions (TSM), page 102

Controller tab element descriptions (TSM), page 103

Segment Controller screen element descriptions (TSM), page 104

Module Controller screen element descriptions (TSM), page 107

Circles tab element descriptions (TSM), page 111

Layout tab element descriptions (TSM), page 112

Statistic tab element descriptions (TSM), page 113

Modify statistical criteria (TSM), page 114

Firmware tab element descriptions (TSM), page 114

Routing Engine tab element descriptions (TSM), page 116

View the connections to TWM on TSM, page 117

Operation mode tab element descriptions (TSM), page 118

Track / RE tab element descriptions (TSM)

The **Track / RE** tab displays the following screen elements.

Elements

Controller tab	Displays a controller overview that lists all modules, segments, and analyzers.
Circles tab	Displays an overview of all generated track circles.
Layout tab	Displays a schematic of the uploaded track layout.
Statistic tab	Displays various statistics pertaining to sample throughput, errors, and module downtimes.
Firmware tab	Displays information about the segment, module, and CAR versions.
Routing Engine tab	Displays all communication end points and the status of the Track Workflow Manager.
Operation mode tab	Displays the current Track Sample Manager operation mode.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Controller tab element descriptions (TSM)

The **Controller** tab displays a controller overview that lists all modules, segments, and analyzers.

Elements

Controller overview	Displays lists of all modules, segments, and analyzers.	
Filter	Displays a text box that is used to search the controllers by ID, segment number, module name, and module type.	
With error	Displays a check box that is used to show only controllers with errors.	
CAR need	Displays a check box that is used to show only controllers with CAR need.	
Controller type	Displays the controller type:	
	Segment	The segment controller overview displays a list of all segments.
	Module	The module controller overview displays a list of all modules.
Module type	Displays the module type.	
Controller id	Displays the controller ID. When the controller ID is selected, a detailed view with further information for the track element in that row is displayed. Several tabs are displayed that vary based on the track element (such as module, segment, or analyzer) that is selected.	
Name	Displays the module name and number.	
Status	Displays the controller status of the modules and segments:	
	Green	• The segment is connected and online. • The module is connected and online, or is in pause mode.

	Yellow	The module is connected but offline.
	Red	• The segment or track element is in an error state. • The module is not connected or an error has been detected.
	Gray	• The segment controller has not reported the track element. • The module is switched off or has been manually disabled.
Element/Area status	Displays the controller status of the track elements and areas:	
	Green	• All connected track elements are online. • All areas are online.
	Yellow	The module is connected but offline.
	Red	• The segment or track is in an error state. • At least one area is in an error state.
	Gray	• The segment controller has not reported the track element. • The module is switched off or has been manually disabled.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Segment Controller screen element descriptions (TSM)

The hardware on the Segment Controller screen can be reset by an Abbott Laboratories representative or an authorized service representative. The Segment Controller screen is displayed when the segment controller ID is selected on the **Controller** tab.

Elements

Controller id	Displays the segment ID.
Connection	Displays the connection number.
Status	Displays the status.
Product code	Displays the product code.
Serial	Displays the serial number.
HW/SW version	Displays the hardware or software version.
Interface version	Displays the interface version.
Error	Displays a text box and a magnifying glass icon.

Track element status tab

Node Id	Displays the track element ID.				
Status	Displays the status sent by the track element: <table><tr><td>Green</td><td>The track element is online.</td></tr><tr><td>Red</td><td>The track element has an error.</td></tr></table>	Green	The track element is online.	Red	The track element has an error.
Green	The track element is online.				
Red	The track element has an error.				
Error	Displays a short description of the error.				
Err#	Displays the number of errors detected in the last hour.				
Type	Displays the track element type.				
Module name	Displays the module name.				
Product code	Displays the product code of the track element.				
SW version	Displays the software version of the track element.				
HW version	Displays the hardware version of the track element.				

AccessPoint configuration tab

Displays the configuration settings for charge, park, and high-priority lanes, and for AccessPoints.

Node Id	Displays the node ID.
Type	Displays the AccessPoint type.
Module name	Displays the module name.
2nd Id	Displays the secondary node ID.
Waiting queue	Displays the waiting queue length.
Speed lane 1	Displays the speed on lane 1.
Sensor, lane 1	Displays the sensor configuration on lane 1.
Speed lane 2	Displays the speed on lane 2.
Sensor, lane 2	Displays the sensor configuration on lane 2.

Switch configuration tab

Displays the configuration settings for lane switches.

Node id	Displays the node ID.
Def. direct. lane 1	Displays the default deviation of switches on lane 1.
Def. direct. lane 2	Displays the default deviation of switches on lane 2.
Speed lane 1	Displays the speed on lane 1.
Sensor, lane 1	Displays the sensor configuration on lane 1.
Factor, lane 1	Displays the factor on lane 1.
Speed lane 2	Displays the speed on lane 2.
Sensor, lane 2	Displays the sensor configuration on lane 2.
Factor, lane 2	Displays the factor on lane 2.

Speed lane 3	Displays the speed on lane 3.
Sens. lane 3	Displays the sensor configuration on lane 3.

Function buttons

Reset hardware	Triggers a controller reset of the selected track elements. NOTE: If no elements are selected, the segment controller receives the reset. The controller reset is forwarded to the segment controller, which performs the reset for itself or forwards it to the selected elements. NOTE: Only an Abbott Laboratories representative or an authorized service representative should reset the hardware.
Update	Refreshes the controller tab or screen.
Close	Closes the controller tab.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Module Controller screen element descriptions (TSM)

The Module Controller screen is displayed when a module is selected in the column for controller type, module type, controller ID, name, status, or element and area status on the **Controller** tab.

Elements

Id / Name	Displays the module name and ID.	
Connection	Displays the connection number of the module.	
Status	Displays the controller status of the module:	
	Green	The module is connected and online, or is in pause mode.
	Yellow	The module is connected but offline.
	Red	The module is not connected or an error has been detected.

	Gray	The module is switched off or has been manually disabled.
Location	Displays the location of the module.	
CAR need	Displays the CAR need of the module.	
Circle status	Displays the circle status of the module:	
	Green	CARs can enter the circle.
	Yellow	The circle is full. No more CARs can enter the circle. NOTE: A CAR outside the circle can enter the circle only if a CAR inside the circle leaves.
Restores/Disposals	Displays the number of samples for restore or disposal action. When the number of samples is selected, a pop-up window is displayed that shows a list of instructions to restore or dispose samples.	
CAR priority	Displays the empty CAR priority for the module:	
	Low	One CAR for each module
	Normal	Two CARs for each module (two times as many CARs as low priority)
	High	Three CARs for each module (three times as many CARs as low priority)
Empty CAR limit	Displays the empty CAR limit status for the module:	
	Green	The module is approached by empty CARs.
	Red	The module has reached the configured empty CAR limit. The module cannot receive empty CARs.
Interface version	Displays the software interface version.	
Error	Displays a text box with a magnifying glass icon.	

Product code	Displays the product code of the module. When the product code is selected, a pop-up window is displayed that shows older serial numbers, hardware versions, and software versions.
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Track elements & Areas tab, Track elements area

Node Id	Displays the track element ID.				
Status	Displays the status sent by the track element: <table><tr><td>Green</td><td>The track element is online.</td></tr><tr><td>Red</td><td>The track element has an error.</td></tr></table>	Green	The track element is online.	Red	The track element has an error.
Green	The track element is online.				
Red	The track element has an error.				
Err#	Displays the number of errors detected in the last hour.				
Type	Displays the track element type.				
2Id	Displays the secondary ID of the track element.				
CAR	Displays the current number of CARs in the queue and the maximum number of CARs allowed in the queue.				

Track elements & Areas tab, Areas area

Name	Displays the area name.						
Status	Displays the area status: <table><tr><td>Green</td><td>The area is active.</td></tr><tr><td>Red</td><td>The area is inactive.</td></tr><tr><td>Gray</td><td>The area is disabled.</td></tr></table>	Green	The area is active.	Red	The area is inactive.	Gray	The area is disabled.
Green	The area is active.						
Red	The area is inactive.						
Gray	The area is disabled.						
Type	Displays the area type.						
Diam.	Displays the sample tube diameter supported by the module.						
2Id	Displays the secondary ID of the track element to which the area is accessible.						

Cap.	Displays the maximum capacity of samples in the area.
Fill level	Displays the fill level of the area:
Blue	Samples are present in this area.
Yellow	Samples are routed for this area.

Components tab

Displays the subcomponents of a module controller.

Comp. Id	Displays the component ID.
Node id	Displays the node ID.
Status	Displays one the following statuses: Online or Error.
Error	Displays the error code and message.
Product code	Displays the product code.
Serial	Displays the serial number.
HW version	Displays the hardware version.
SW version	Displays the software version.

Disciplines tab

Displays the disciplines of a module.

Area Type	Displays the area type of the module.
Disciplines	Displays the discipline of the module.

Function buttons

Disable	Disables the selected module on TSM. NOTE: Only an Abbott Laboratories representative or an authorized service representative is permitted to perform this action, which enables the fill level to be reset (when
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the **Reset fill level** button is selected) or the module to be emptied.

NOTE: A module can be disabled only when the queue does not contain CARs or when no CARs are being routed to the module and fewer than two switches are located in front of the module. If these situations are not applicable, the module status must be changed before the module is disabled on the TSM.

Enable	Enables the selected module on TSM.
Update	Refreshes the module controller data on the screen.
Close	Closes the screen and returns to the controller overview.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Circles tab element descriptions (TSM)

The **Circles** tab displays an overview of all generated track circles. Defining the circles is recommended to ensure optimum traffic control on large-scale track systems. A schematic of all circles is displayed on the **Layout** tab.

Elements

Fill level control	Displays the fill level control for the circle: • All CARs • Empty CARs • No CARs (disabled)
Name	Displays the circle name. The Track Sample Manager sets a default name that the administrator can change.
Relevant switches	Displays the node IDs of all switches whose default positions define the circle boundaries.
Modules in circle	Displays the module IDs of the modules in the circle.
Status	Displays the status of the circle: Green CARs can enter the circle.

	Yellow	The circle is full. No more CARs can enter the circle.
CAR limit		Displays the maximum number of CARs permitted in the circle.
CARs in		Displays the number of CARs currently in the circle.
CARs to		Displays the number of CARs approaching the circle that cannot turn back.

Function buttons

Update	Refreshes the circle data. Full track circles are displayed in the traffic jam view of the monitoring windows.
Save	Saves the circle data when the administrator changes the name.

Related information...

[Track / RE tab \(TSM\)](#), page 101

[Layout tab element descriptions \(TSM\)](#), page 112

Layout tab element descriptions (TSM)

The **Layout** tab displays a schematic of the uploaded track layout. The track layout is a custom design and must be uploaded to the Track Sample Manager by an Abbott Laboratories representative or an authorized service representative.

The track layout also contains the following information:

- The module status and segment controller status indicated by colors
- Traffic jam information displayed by a flashing red CAR symbol
- Track circles displayed as blue circles with dotted blue lines indicating entry and exit points
- CAR location or movement along the track displayed as a black CAR symbol

Elements

Level	Displays a drop-down list that is used to change the building story or level of the track layout.
Magnifying glass icons	Displays two icons that are used to zoom in and zoom out of the track layout.

Circle Displays a drop-down list that is used to select a circle name.

This element is displayed only when the circle is on the level currently being viewed.

CAR Displays a text box that is used to enter the CAR serial number.

This element is displayed only when the CAR is on the building story or level currently being viewed.

Related information...

[Track / RE tab \(TSM\)](#), page 101

[Circles tab element descriptions \(TSM\)](#), page 111

[Track overview](#), page 34

Statistic tab element descriptions (TSM)

The **Statistic** tab displays various statistics pertaining to sample throughput, errors, and module downtimes. Statistics are retained for 1 year.

Elements

Type	Displays a drop-down list that is used to select the statistical data by area type or module type.
Area	Displays a drop-down list that is used to select the statistical data by the configured areas.
Element	Displays a drop-down list that is used to select the statistical data by the track elements.
Grouped by	Displays a drop-down list that is used to group the statistical data by area or module.
Period	Displays a drop-down list that is used to select the statistical data by day, week, month, or year.
Start date	Displays the start date for the statistics review.
Statistics graph	Displays a graphical representation of the sample throughput statistics for an area type.

Function buttons

Export Exports the statistics to an Excel file.

Update Updates the statistics.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Modify statistical criteria (TSM)

Perform this procedure to modify the statistical criteria for each track element on the Track Sample Manager (TSM).

1. On the TSM main menu, tap **Track / RE**.
2. On the **Track / RE** tab, tap **Statistic**.
3. On the **Statistic** tab, enter the following information for each track element:
 - **Type**
 - **Area**
 - **Element**
 - **Grouped by**
 - **Period**
 - **Start date**
4. Tap **Update**.

The statistics are displayed.
5. Tap **Export**.

The statistics are exported to an Excel file.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Firmware tab element descriptions (TSM)

The **Firmware** tab displays information about the segment, module, and CAR versions.

Firmware package area

Displays the **Segment** tab, **Module** tab, and **CAR** tab.

Segment tab

Displays the version information of track elements.

Controller	Displays the name of the segment controller.
Element	Displays the node ID of the track element.
Serial	Displays the serial number of the segment.
Product Code	Displays the product code. When the product code is selected, the product history of the segment is displayed.
SW Version	Displays the software version of the segment.
HW Version	Displays the hardware version of the segment.
Installation	Displays the date the segment was installed and first reported to the Track Sample Manager (TSM).

Module tab

Displays the version information of modules and their components.

Controller	Displays the name of the module controller.
Component	Displays the component ID.
Element	Displays the optional element of the component.
Serial	Displays the serial number of the module.
Product Code	Displays the product code. When the product code is selected, the product history of the module is displayed.
HW Version	Displays the hardware version of the module.
SW Version	Displays the software version of the module.
Other Versions	Displays other version information of the component (for example, scripts).
Installation	Displays the date the module was installed and first reported to TSM.

CAR tab

Displays software and hardware versions, and CAR operations data.

CAR	Displays the CAR serial number.
SW Version	Displays the software version number.
HW Version	Displays the hardware revision number.
Mileage (in km)	Displays the overall distance the CAR has moved (in kilometers).
Operation hours	Displays the number of hours the CAR has been in use since manufacturing or refurbishment.
Tare weight	Displays the CAR weight that the CAR reports at a charge point.

Function buttons

Update	Refreshes the screen.
Export	Exports and downloads data to an Excel file.
Close	Closes the screen.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Routing Engine tab element descriptions (TSM)

The **Routing Engine** tab displays all communication end points and the status of the Track Workflow Manager (TWM).

The Track Sample Manager (TSM) cannot function appropriately without a connection to the TWM. It is vital for both connection status indicators to be green. If the TWM is not connected, TSM buffers messages. The number of buffered or unsent messages is displayed along with the corresponding status.

Elements

Incoming Connection	Displays the connection the Routing Engine (RE) establishes with TSM. The following screen elements are displayed:
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	Status	
	Green	RE is connected.
	Red	RE is disconnected.
	Local address	Displays the local address.
	Remote address	Displays the remote address.
Outgoing Connection	Displays the connection TSM establishes with the RE. The following screen elements are displayed:	
	Status	
	Green	RE is connected.
	Red	RE is disconnected.
	Local address	Displays the local address.
	Remote address	Displays the remote address.
Buffered messages	Displays the number of unsent messages.	

Function buttons

Clear messages	Deletes the unsent messages to the RE.
Close	Closes the screen.

Related information...

[Track / RE tab \(TSM\)](#), page 101

View the connections to TWM on TSM

Perform this procedure to view the incoming and outgoing connections to the Track Workflow Manager (TWM) on the Track Sample Manager (TSM).

1. On the TSM main menu, tap **Track / RE**.
2. On the **Track / RE** tab, tap **Routing Engine** to display information about the incoming and outgoing connections to TWM.
3. On the **Routing Engine** tab, view the connection statuses, which are displayed for incoming and outgoing connections as either green or red:

Green	TWM is connected.
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Red TWM is not connected. Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Operation mode tab element descriptions (TSM)

The **Operation mode** tab displays the current Track Sample Manager (TSM) operation mode.

Elements

Operation mode Displays a drop-down list of the operation mode for the TSM.

NOTE: The operation mode can be viewed by the operator, but is editable only by the Abbott Laboratories representative or the authorized service representative.

The following operation modes are available:

Standby	Unused and empty CARs wait at the charge and park lanes.
Test	CARs move continuously over the track to test track elements.
Disconnected	The TSM is disconnected from the Routing Engine and track.

Function button

Save Saves changes.

Related information...

[Track / RE tab \(TSM\)](#), page 101

Samples tab (TSM)

On the **Samples** tab on the Track Sample Manager, the operator can perform the following functions:

- View information about processed samples.
- Search for specific information about all samples.

Related information...

[Main menu screen \(TSM\)](#), page 99

[Samples tab element descriptions \(TSM\)](#), page 119

[Search tab \(Samples\) element descriptions \(TSM\)](#), page 119

[Search result screen element descriptions \(TSM\)](#), page 120

[Sample Detail screen element descriptions \(TSM\)](#), page 121

[Sample History screen element descriptions \(TSM\)](#), page 123

[Search for samples \(TSM\)](#), page 125

[Remove a sample \(TSM\)](#), page 126

[Expert search tab \(Samples\) element descriptions \(TSM\)](#), page 126

[List requested tab \(Samples\) element descriptions \(TSM\)](#), page 129

[Request to send a sample to an output area \(TSM\)](#), page 129

Samples tab element descriptions (TSM)

The **Samples** tab displays the following screen elements.

Elements

Search	Displays a tab that is used to search for samples.
Expert search	Displays a tab that is used to search for another sample by using different criteria in a detailed search.
List requested	Displays a tab that lists all samples that have been requested manually by the operator from one area to another.
Buffered samples list	Displays a tab that lists all samples.

Related information...

[Samples tab \(TSM\)](#), page 118

Search tab (Samples) element descriptions (TSM)

Samples are searched and displayed on the **Search** tab.

Elements

Barcode	Displays a text box that is used to enter the sample bar code. NOTE: The bar code number is order specific or sample specific and can be found on the laboratory information system, for example.
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Sample no Displays a text box that is used to enter the Track Sample Manager (TSM) sample number.

NOTE: Sample numbers are generated by the TSM and are displayed by using separate search operations (for example, CAR search) or by using the Track Workflow Manager.

Function button

Search Displays a list of search results.

NOTE: When a sample is selected from the list of search results, the Sample Detail screen is displayed.

Related information...

[Samples tab \(TSM\)](#), page 118

Search result screen element descriptions (TSM)

When the **Search** button on the **Search** tab or **Expert search** tab is selected, a list of search results is displayed.

Elements

Number	Displays the number.
Barcode	Displays the sample bar code number.
Date of entry	Displays the entry date.
Status	Displays the current status of the sample.
Location	Displays the location of the sample.
Target area	Displays the target area.
Target start	Displays the target start.
Error code	Displays the error code.
Count	Displays the count number.
Output area	Displays a drop-down list that is used to select the output area.
Request button	Requests a sample to move to the selected output area.

Function button

Close	Closes the screen.
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Related information...

[Samples tab \(TSM\)](#), page 118

[Expert search tab \(Samples\) element descriptions \(TSM\)](#), page 126

Sample Detail screen element descriptions (TSM)

The Sample Detail screen displays additional information about a sample. When the **Search** button on the **Search** tab or **Expert search** tab is selected, a list of search results is displayed. When a sample is selected from the list of search results, the Sample Detail screen is displayed.

Elements

Number	Displays the number.
Barcode	Displays the sample bar code number.
Status	Displays the current status of the sample.
Entry date	Displays the entry date.
Entry location	Displays the entry location.
Exit date	Displays the date the sample leaves the track.
Error	Displays any error for the sample.
Priority	Displays the priority.
Discipline	Displays the sample discipline.

Progress tab

Location	Displays the location of the sample.
Module / Area	Displays the instrument and area.
Sector	Displays the sector number.

	Rack / Pos.	Displays the rack number and position number.
Target Plan	Displays a magnifying glass icon that is used to display information about sample processing on the track. NOTE: When the magnifying glass icon is selected, the Sample History screen is displayed.	
	Origin	Displays the origin of the order.
	Area options	Displays the area.
	Start	Displays the start date and time.
	Target	Displays the targets to which the sample is routed.
	Result	Displays the result of the sample routed to the target.
	Duration	Displays the time elapsed since the start.
	Parameter	Allows the operator to view the sample detail of the target.
Request to	Allows the operator to request a sample to an output area.	
	Output area	Displays a drop-down list that is used to select the output area.
	Request button	Requests a sample to move to the selected output area.

Tube tab

Displays the sample tube type information.

Function buttons

Remove	Informs the Track Sample Manager and the Track Workflow Manager that a sample has been removed from a CAR or module.
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NOTE: The sample is allowed to reenter the system only on the Input/Output Module.

Recover	Recovers the status of the sample from the module if the status is unknown.
Update	Refreshes the sample data.
Close	Closes the screen.

Related information...

[Samples tab \(TSM\)](#), page 118

[Expert search tab \(Samples\) element descriptions \(TSM\)](#), page 126

Sample History screen element descriptions (TSM)

The Sample History screen displays the detailed route of a sample along the track.

Elements

Target area options	Displays all target areas of the sample.				
Start	Displays the start day, month, and time when the sample will reach a specific target area or when the sample will be processed by a specific module.				
Location	Displays the starting location of the sample when the sample approaches a specific target area and when the sample reaches the target area: • A CAR with a module ID • A CAR at a switch with a node ID • A module ID and an area				
Target / Activity	Displays the target area that was selected from the area options, or the activity that was selected on the CAR or the module. The following information may be displayed: <table><tr><td>Complete Output</td><td>This target area is sent by the Track Workflow Manager.</td></tr><tr><td>CAR removed / in jam</td><td>The CAR is detected as removed or as stuck in a traffic jam.</td></tr></table>	Complete Output	This target area is sent by the Track Workflow Manager.	CAR removed / in jam	The CAR is detected as removed or as stuck in a traffic jam.
Complete Output	This target area is sent by the Track Workflow Manager.				
CAR removed / in jam	The CAR is detected as removed or as stuck in a traffic jam.				

	Circling	The sample on the CAR cannot reach a target.
	Processing	The sample is being processed on a module.
	Target evaluation	The next target for the sample is currently calculated.
	Waiting	The sample is waiting.
	Weighing	The sample is currently on the scale.
Result	Displays the sample results:	
	Canceled: New target	The CAR is rerouted or the target step has changed.
	CAR returned / jam resolved	A removed CAR is returned to the track.
	Canceled: CAR removed	The CAR is detected as removed.
	Canceled: Sample removed	The sample is detected as removed.
	Error	The module sends a sample error message.
	Canceled: Not processed	The module has not sent a notification for sample processing is completed.
	Restored	The sample is restored.
	Late result ignored	The notification for sample processing result arrived too late.
	Canceled	The route was abandoned.
	Arrived	The sample arrived at the target area.
	Success	The module processed the sample successfully.

Warning

The module processed the sample with a warning code.

Duration

Displays the time elapsed since the start.

Function button**Close**

Closes the screen.

Related information...

[Samples tab \(TSM\)](#), page 118

[Expert search tab \(Samples\) element descriptions \(TSM\)](#), page 126

Search for samples (TSM)

Perform this procedure to search for samples on the Track Sample Manager (TSM).

1. On the TSM main menu, tap **Samples**.
2. On the **Samples** tab, tap the **Search** tab.
3. On the **Search** tab, enter the TSM sample number or the sample bar code.

NOTE: The sample bar code can be entered in the following ways:

- The bar code 0999.0999-9 can be entered as 0999.09999 if the exact bar code is known.
- The bar code 0999.0999-9 can be entered as 0999.0999* if the last digit of the bar code is unknown or if there are multiple samples on the track that end with this bar code. All samples that have a bar code beginning with 0999.0999 are listed.

4. Tap **Search** or press the **Enter** key to display a list of search results.
5. If multiple samples are displayed for one bar code, select the sample based on its status.

NOTE: The following actions can cause multiple samples to be displayed for one bar code:

- A bar code containing an asterisk was entered.
- Tubes have been repeatedly removed from and placed back on the GLP systems Track.
- Additional secondary tubes with an identical bar code have been generated on the Aliquot Module.

Related information...

[Samples tab \(TSM\)](#), page 118

[Expert search tab \(Samples\) element descriptions \(TSM\)](#), page 126

Remove a sample (TSM)

Perform this procedure to remove a manually removed sample from the Track Sample Manager (TSM).



CAUTION: Do not remove samples from a CAR or the track. All samples removed from the track must be placed back in the Input/Output Module (IOM) for appropriate routing. When samples are removed from the track, they must be deleted from TSM before they are reloaded.

IMPORTANT: A sample that was manually removed from the track must be marked as Removed. Consequently, the sample receives a status of Unknown.

1. On the TSM main menu, tap **Samples**.
2. On the **Samples** tab, tap the **Search** tab.
3. On the **Search** tab, enter the TSM sample number or the sample bar code.

NOTE: The sample bar code can be entered in the following ways:

- The bar code 0999.0999-9 can be entered as 0999.09999 if the exact bar code is known.
- The bar code 0999.0999-9 can be entered as 0999.0999* if the last digit of the bar code is unknown or if there are multiple samples on the track that end with this bar code. All samples that have a bar code beginning with 0999.0999 are listed.

4. Tap **Search** or press the **Enter** key to display a list of search results.
5. If multiple samples are displayed for one bar code, select the sample based on its status.

NOTE: The following actions can cause multiple samples to be displayed for one bar code:

- A bar code containing an asterisk was entered.
- Tubes have been repeatedly removed from and placed back on the GLP systems Track.
- Additional secondary tubes with an identical bar code have been generated on the Aliquot Module.

6. Tap the sample to be removed.
7. On the Sample Detail screen, tap **Remove**.
8. When a confirmation message is displayed, tap **OK**.

In the **Error** text box on the Sample Detail screen, the sample is marked as removed.

Related information...

[Samples tab \(TSM\)](#), page 118

[Expert search tab \(Samples\) element descriptions \(TSM\)](#), page 126

[Replace a CAR with a sample](#), page 304

Expert search tab (Samples) element descriptions (TSM)

The **Expert search** tab is used to enter detailed filter options when searching for samples.

Search area

Displays the search criteria for the sample.

Barcode	Displays a text box that is used to search by the bar code.	
Sample no	Displays a text box that is used to search by the sample number.	
Entry from	Displays a text box that is used to search for a sample on the track by the search start date.	
Entry to	Displays a text box that is used to search for a sample on the track by the search end date.	
Error code	Displays a drop-down list that is used to search by an error code.	
Priority	Displays check boxes that are used to search by the priority: • Emergency • Normal • Preferred • High • Low	
Status	Displays check boxes that are used to search by the current status of a sample:	
	Active	The Track Sample Manager (TSM) is controlling and processing the sample.
	Regularly removed	The sample has been removed from an output area for further manual processing.
	Disposed	The sample has been disposed from storage.
	Unknown	The TSM cannot detect the location of the sample.
Target plan	Displays the following options:	

- **With**
- **Any**
- **Without**

Sample processing area

Displays the sample processing criteria.

Area	Displays a drop-down list that is used to search by a target area or a processed area.
Target area	Displays an option.
Processed area	Displays a selected option.
Processed from	Displays the processing start time when the sample was processed.
Processed to	Displays the processing end time when the sample was processed.

Sample location area

Displays the current location of the sample.

CAR	Displays a check box.
Module	Displays a drop-down list that is used to search by the module.
Area	Displays a drop-down list that is used to search by the area.
Aggregate by target	Displays a check box for the aggregate samples by target area.

Function button

Search	Displays a list of search results for CARs. NOTE: When a sample is selected from the list of search results, the Sample Detail screen is displayed.
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Related information...

[Samples tab \(TSM\)](#), page 118

[Search result screen element descriptions \(TSM\)](#), page 120

[Sample Detail screen element descriptions \(TSM\)](#), page 121

[Sample History screen element descriptions \(TSM\)](#), page 123

[Search for samples \(TSM\)](#), page 125

[Remove a sample \(TSM\)](#), page 126

List requested tab (Samples) element descriptions (TSM)

The **List requested** tab displays an overview of all samples that have been manually requested by the operator and displays the progress of a sample that has been manually requested. The list updates automatically.

Elements

Number	Displays the number.
Barcode	Displays the sample bar code number.
Date of entry	Displays the entry date.
Status	Displays the status.
Location	Displays the current location.
Target area	Displays the target area.
User	Displays the operator.
Count	Displays the count number.

Related information...

[Samples tab \(TSM\)](#), page 118

Request to send a sample to an output area (TSM)

Perform this procedure to request to send a sample to an output area on the Track Sample Manager (TSM).

1. On the TSM main menu, tap **Samples**.
2. On the **Samples** tab, tap the **Search** tab.
3. On the **Search** tab, enter the TSM sample number or the sample bar code.

NOTE: The sample bar code can be entered in the following ways:

- The bar code 0999.0999-9 can be entered as 0999.09999 if the exact bar code is known.
 - The bar code 0999.0999-9 can be entered as 0999.0999* if the last digit of the bar code is unknown or if there are multiple samples on the track that end with this bar code. All samples that have a bar code beginning with 0999.0999 are listed.
4. Tap **Search** or press the **Enter** key to display a list of search results.
 5. If multiple samples are displayed for one bar code, select the sample based on its status.
NOTE: The following actions can cause multiple samples to be displayed for one bar code:
 - A bar code containing an asterisk was entered.
 - Tubes have been repeatedly removed from and placed back on the GLP systems Track.
 - Additional secondary tubes with an identical bar code have been generated on the Aliquot Module.
 6. Under **Request to**, select the output area in the **Output area** drop-down list.
 7. Tap **Request**.

Related information...

[Samples tab \(TSM\)](#), page 118

CARs tab (TSM)

On the **CARs** tab on the Track Sample Manager, the operator can perform the following functions:

- Search for specific information about all CARs.
- View information about CARs on the track.

Related information...

[Main menu screen \(TSM\)](#), page 99

[CARs tab element descriptions \(TSM\)](#), page 130

[Search tab \(CARs\) element descriptions \(TSM\)](#), page 131

[Request to send a CAR to a maintenance lane \(TSM\)](#), page 132

[Waiting queues tab element descriptions \(TSM\)](#), page 133

[Circling tab element descriptions \(TSM\)](#), page 133

[Maintenance tab element descriptions \(TSM\)](#), page 134

CARs tab element descriptions (TSM)

The **CARs** tab displays all information about the CARs.

Elements

Search	Displays a tab that is used to search for CARs.
Waiting queues	Displays a tab that lists all CARs at waiting points and in charge lanes.
Circling	Displays a tab that lists all CARs currently circling on the track because they are not able to reach their targets.
Maintenance	Displays a tab that lists all CARs in the maintenance lane.

Related information...

[CARs tab \(TSM\)](#), page 130

Search tab (CARs) element descriptions (TSM)

On the **Search** tab, the operator can search for CARs.

Elements

Serial	Displays a text box that is used to search by the serial number.
Segment	Displays a drop-down list that is used to select the segment.
Target	Displays a drop-down list that is used to select the target.
Loaded	Displays a check box that is used to search by loaded CARs.
Empty	Displays a check box that is used to search by empty CARs.
Moving	Displays a check box that is used to search by moving CARs.
Charging	Displays a check box that is used to search by charging CARs.
Waiting	Displays a check box that is used to search by waiting CARs.
Serial	Displays the serial number of the CAR.
Status	Displays the status of the CAR: • Charging • In maintenance

- **Moving**
- **Needs maintenance**
- **Removed**
- **Waiting**

Battery	Displays the lithium battery percentage of the CAR.
Target	Displays the target of the CAR.
Min.left	Displays the remaining minutes.
Last Position	Displays the last location of the CAR.
Sample	Displays the sample loaded in the CAR. If a CAR is loaded with a sample, the bar code is displayed. When the bar code is selected, the sample data is displayed.
Error	Displays the error code for the CAR.
Messages	Displays a magnifying glass icon. Selecting the magnifying glass icon displays all messages relating to the CAR.
Listed CARs	Displays the number of CARs on the system.
Request to	Displays a drop-down list that is used to select a maintenance lane.

Function buttons

Request	Requests a CAR to send to a maintenance lane.
Search	Displays a list of search results.

Related information...

[CARs tab \(TSM\)](#), page 130

Request to send a CAR to a maintenance lane (TSM)

Perform this procedure to request to send a CAR to a maintenance lane. A CAR that causes issues can be sent to a maintenance lane.

1. On the **Search** tab, select a CAR to be sent to the maintenance lane.
2. In the **Request to** drop-down list, select a maintenance lane.
3. Tap **Request**.

Related information...

[CARs tab \(TSM\)](#), page 130

Waiting queues tab element descriptions (TSM)

The **Waiting queues** tab displays a list of all CARs that are located at waiting points and in charge lanes. CARs with a problem are indicated with a bold, red font. Moving the cursor over the number displays the reason for the problem.

Elements

Module	Displays the module.
Queue	Displays the queue.
Length	Displays the length of the queue.
CARs in or before queue	Displays the CAR numbers in or before the queue.
CARs approaching	Displays the approaching CARs in the queue.

Function button

Update	Refreshes the screen.
---------------	-----------------------

Related information...

[CARs tab \(TSM\)](#), page 130

Circling tab element descriptions (TSM)

The **Circling** tab displays a list of all CARs currently circling on the track because they are not able to reach their targets.

Elements

CAR count	Displays the number of CARs.
Target area	Displays the target area.
Target module	Displays the target module.
Reason	Displays the target module issue.

Function button

Update Refreshes the screen.

Related information...

[CARs tab \(TSM\)](#), page 130

Maintenance tab element descriptions (TSM)

The **Maintenance** tab displays a list of all CARs that are in the maintenance lane or on their way to it.

Elements

CAR	Displays a text box that is used to enter the CAR number.
Filter	Displays a text box that is used to filter information.
Serial	Displays the serial number of the CAR.
Status	Displays the status of the CAR: Needs maintenance On the way In maintenance Arrived
Target	Displays the current target of the CAR. The target can also be an intermediary stop if the CAR needs to be unloaded first.
Last Position	Displays the last location of the CAR.
Maint. arrived	Displays the arrival of the CAR in the maintenance lane.
Maint. count	Displays the number of maintenance instances for the CAR.
Maint. last	Displays the date of the last maintenance performed.
Error	Displays the reason for the maintenance needed. A CAR error code or an operator request for the CAR is displayed.
Messages	Displays a magnifying glass icon. Selecting the magnifying glass icon displays all messages relating to the CAR.
Listed CARs	Displays the number of CARs that need maintenance.

Function buttons

Cancel request	Cancels a request.
Remove arrived	Removes a CAR from the maintenance lane.
Update	Refreshes the screen.

Related information...

[CARs tab \(TSM\)](#), page 130

Track Workflow Manager user interface

The Track Workflow Manager user interface receives sample orders from the laboratory information system through the middleware, and provides target data and instructions for samples to the Track Sample Manager.

Related information...

Operating instructions, page 87

Roles and permissions (TWM), page 136

Main menu screen (TWM), page 137

Workflow screen (TWM), page 158

Master data screen (TWM), page 158

Admin screen (TWM), page 159

Roles and permissions (TWM)

NOTE: This operations manual describes only the functions relevant to the track operator. Separate training is required for administrator roles and permissions.

Table 17: Roles

Role	Description
Service	Abbott Laboratories representative or authorized service representative
Administrator	Local administrator
Operator	Track operator

Table 18: Permissions

Role	Description
Service	All functions and buttons are available and enabled.
Administrator	Nearly all functions and buttons are available and enabled. - JSON notification information is not displayed on the Sample details screen (Run → Sample search → Sample details). - The Clear messages column is not available (Run → Connections → Clear messages). - No authorization to edit the settings of operators with Service role is available.
Operator	Only the functions and buttons on the start menu are available and enabled. A limited display of sample details are available.

Related information...

[Track Workflow Manager user interface](#), page 136

Main menu screen (TWM)

From the main menu of the Track Workflow Manager, the operator can perform the following functions:

- Search for samples and sample details.
- View informational, warning, and error messages.
- View instrument and test statuses.
- Activate or deactivate one or more instruments or tests.
- View the connection status.

Related information...

[Track Workflow Manager user interface](#), page 136

[Main menu screen element descriptions \(TWM\)](#), page 137

[Menu overview screen element descriptions \(TWM\)](#), page 138

[Sample search screen \(TWM\)](#), page 139

[Messages screen \(TWM\)](#), page 146

[Instrument status screen \(TWM\)](#), page 148

[Test status screen \(TWM\)](#), page 152

[Connections screen \(TWM\)](#), page 156

Main menu screen element descriptions (TWM)

After the operator successfully logs on to the Track Workflow Manager (TWM), the main menu is displayed with the following screen elements.

Elements

Language	Displays the language selected.
User name	Displays the operator logged on.
Log off button 	Logs off from TWM.
Run button	Navigates to the Menu overview screen.

Overview area

User	Displays the operator logged on.
TWM version	Displays the TWM version.
Operation mode	Displays the current operational status.
Laboratory time	Displays the time and time zone settings.
Recovery backup status	Displays the recovery backup status.

Related information...

[Main menu screen \(TWM\)](#), page 137

[Log on to the Track Workflow Manager \(TWM\)](#), page 94

Menu overview screen element descriptions (TWM)

The menu overview displays the following screen elements.

Elements

Run button	Displays the Menu overview screen.
Sample search button	Displays information about sample details, tests, routing history, senders, and patients.
Messages button	Displays informational messages, warning messages, and error messages.
Instrument status button	Displays the settings for enabling or disabling one or more analyzers and the settings for enabling or disabling one or more tests of an analyzer.
Test status button	Displays the settings for enabling or disabling one or more tests.
Connections button	Displays information about Track Workflow Manager incoming and outgoing connection data.

Related information...

[Main menu screen \(TWM\)](#), page 137

[Sample search screen element descriptions \(TWM\)](#), page 139

[Sample details screen element descriptions \(TWM\)](#), page 141

[Messages screen \(TWM\)](#), page 146

[Instrument status screen \(TWM\)](#), page 148

[Test status screen \(TWM\)](#), page 152

[Connections screen \(TWM\)](#), page 156

Sample search screen (TWM)

On the Sample search screen, the operator can view the following information:

- Sample details
- Tests
- Routing history
- Sender
- Patients

Related information...

[Main menu screen \(TWM\)](#), page 137

[Sample search screen element descriptions \(TWM\)](#), page 139

[Sample details screen element descriptions \(TWM\)](#), page 141

[Routing History flyout element descriptions \(TWM\)](#), page 143

[Search for samples and sample details \(TWM\)](#), page 144

Sample search screen element descriptions (TWM)

The Sample search screen displays search criteria for samples.

Elements

Order ID	Displays a text box that is used to search by the order ID.
Sample ID	Displays a text box that is used to search by the sample ID.
Sample status filter	Displays the following options that are used to search by the sample status: • Any • On-track samples without order • On-track samples with pending tests • On-track samples buffered by TSM • Ordered samples without any on-track sample
Track entry time from	Displays a text box that is used to search for a sample on the track by the search start date.

Sample priority	Displays a drop-down list that is used to search by the sample priority.
Track entry time to	Displays a text box that is used to search for a sample on the track by the search end date.
Sender	Displays a text box that is used to search by the sender.
Order time from	Displays a text box that is used to search by the start order time.
Patient	Displays a text box that is used to search by the patient name.
Order time to	Displays a text box that is used to search by the end order time.
Current area	Displays a drop-down list that is used to search by the current area.
Search button	Searches for samples.
Track entry	Displays the time that the sample was placed on the track.
Sample ID	Displays the sample ID (bar code) number.
Order ID	Displays the order ID from the laboratory information system.
Aliquot	Displays if an aliquot tube is used.
Sender	Displays the sender.
Priority	Displays the priority of the sample.
Last area	Displays the most recent area where the sample was located.
Current area	Displays the current area where the sample is located.
Next area	Displays the next area where the sample will be located.
Information	Displays the most recent message for the sample.
Downloaded / Result / Total tests	Displays the number of downloaded, result, and total tests.

Function button

Close	Closes the screen.
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Related information...

[Sample search screen \(TWM\)](#), page 139

[Menu overview screen element descriptions \(TWM\)](#), page 138

Sample details screen element descriptions (TWM)

The Sample details screen displays additional information for a selected sample.

Elements

Order ID	Displays the order ID.
Fluid type	Displays the fluid type.
Centrifugation status	Displays the centrifugation status.
Sample ID	Displays the sample ID.
Tube type	Displays the tube type.
Cap status	Displays the cap status.
Aliquot number	Displays the aliquot number.
Current area	Displays the current area.
Sample priority	Displays the sample priority.
Order date	Displays the order date and time.
Information	Displays the sample information.

Tests button

Displays the sample details for test information.

Test code	Displays a list of sample details by test code.
Test description	Displays a list of sample details by test description.

Order action	Displays a list of sample details by order action.
Order time	Displays a list of sample details by order time.
Last disable time	Displays a list of sample details by last disable time.
Download time	Displays a list of sample details by download time.
Result time	Displays a list of sample details by result time.
Instrument	Displays a list of sample details by instrument name.
Closed	Displays a list of sample details by closed samples.

Routing history button

Displays the sample details for routing history information.

Date	Displays the date and time.
TSM sample no.	Displays the unique Track Sample Manager sample number.
Priority	Displays the priority.
Message type	Displays the message type.
Tests	Displays the tests.
Areas	Displays the areas.
Instruments	Displays the instruments.
Details button	Displays the Routing History flyout.

Sender button

Displays the sample details for sender information.

NOTE: Information is displayed only if it has been sent by the laboratory information system (LIS).

Production laboratory	Displays the production laboratory.
Requesting doctor	Displays the requesting doctor.
Requesting laboratory	Displays the requesting laboratory.

Attending doctor	Displays the attending doctor.
Ward	Displays the ward.
Admission ward	Displays the admission ward.

Patient button

Displays the sample details for patient information.

NOTE: Information is displayed only if it has been sent by the LIS.

Patient ID	Displays the patient ID.
Nature	Displays the nature (human or animal).
First name	Displays the first name.
Gender	Displays the gender.
Middle name	Displays the middle name.
Last name	Displays the last name.
Date of birth	Displays the date of birth.

Function buttons

Refresh	Refreshes the screen.
Close	Closes the screen.

Related information...

[Sample search screen \(TWM\)](#), page 139

[Menu overview screen element descriptions \(TWM\)](#), page 138

Routing History flyout element descriptions (TWM)

The Routing History flyout displays additional routing history information for a selected sample.

Elements

Sample ID	Displays the sample ID.
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Message date	Displays the message date and time.
Message type	Displays the message type.
Routing purpose	Displays the routing purpose message.
Error	Displays the error message.

Function button

Close	Closes the flyout.
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Related information...

[Sample search screen \(TWM\)](#), page 139

Search for samples and sample details (TWM)

Perform this procedure to search for samples and sample details on the Track Workflow Manager (TWM). The Sample search menu and the Sample details menu contain information about sample details, tests, routing history, sender, and patients.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Sample search**.
3. In the Sample search menu, enter the sample ID (bar code) number in the **Sample ID** text box.

NOTE: The sample bar code can be entered in the following ways:

- The bar code 999.999-9 can be entered as 099909999 if the last digit of the bar code is known.
 - The bar code 999.999 can be entered as 09990999* if the last digit of the bar code is unknown or if all samples of the patient bar code that was entered are displayed.
4. Enter one or more of the following search criteria for the sample:
 - **Order ID**
 - **Track entry time from**
 - **Track entry time to**
 - **Order time from**
 - **Order time to**
 - **Sample priority**
 - **Sender**
 - **Patient**
 - **Current area**

- **Sample status filter:**
 - **Any**
 - **On-track samples without order**
 - **On-track samples with pending tests**
 - **On-track samples buffered by TSM**
 - **Ordered samples without any on-track sample**

NOTE: If the **Any** option is selected for the sample status filter, the sample ID must be entered as well. If one of the other options is selected for the sample status filter, TWM ignores all additional search criteria (for example, sample ID) and searches for samples based on the selected option.

5. Tap **Search**.
6. In the list of samples found, tap a sample.
7. On the Sample details menu, view the following information:
 - Order ID
 - Sample ID
 - Aliquot number
 - Order date
 - Fluid type
 - Tube type
 - Current area
 - Information
 - Centrifugation status
 - Cap status
 - Sample priority
8. To view the test information, tap **Tests**.
9. To view the routing history information, perform the following steps:
 - a. Tap **Routing history**.
 - b. Tap the **Details** button in the appropriate row.
10. To view the sender information, tap **Sender**.
11. To view the patient information, tap **Patient**.
12. To return to the list of samples found, tap **Close**.

Related information...

[Sample search screen \(TWM\)](#), page 139

Messages screen (TWM)

On the Messages screen, the operator can view the following information:

- Informational messages
- Warning messages
- Error messages

Related information...

[Main menu screen \(TWM\)](#), page 137

[Messages screen element descriptions \(TWM\)](#), page 146

[View the messages \(TWM\)](#), page 148

[Menu overview screen element descriptions \(TWM\)](#), page 138

Messages screen element descriptions (TWM)

The Messages screen displays message information.

Elements

Automatic refresh	Refreshes all messages from the last 30 minutes automatically and refreshes the messages continuously every 30 seconds. The start and end dates cannot be edited.
Manual refresh	Refreshes the messages manually. The start date and end date can be selected. The date range is restricted to 24 hours.
Start	Enter the start date of the message.
End	Enter the end date of the message.
Filter	Filters the messages displayed in the table by text to find all text lines that match the search text entered. A mouse-over displays a pop-up window with details on the filtered type and text columns to the operator.
Group	Groups the messages by default according to their number or type. Only the latest message is displayed in the table. The total number of messages for a specific number is indicated in the Count column. The grouping is formed on the basis of all messages displayed in the table.

Messages table area

Quantity	Displays a column when message grouping according to type is active. The number of messages of the same type is indicated. Selecting the Count column expands the messages group, displaying all older messages of the group. Deselecting the Group field displays all messages, and the Count column is no longer displayed in the table.	
ID	Displays the message ID.	
Time	Displays the time the message was created	
Priority	Displays the priority of the message:	
	Green	Informational message
	Yellow	Warning message
	Red	Error message
Type	Displays the message type with number and text.	
Text	Displays the detailed message description.	
Instrument	Displays this message when an instrument is linked. A magnifying glass icon is displayed when the instrument is enabled or disabled. A mouse-over displays a pop-up window with the name of the instrument.	
Sample	Displays this message when a sample is linked. A magnifying glass icon is displayed if an error message occurs on the Track Sample Manager. A mouse-over displays a pop-up window containing the sample ID or bar code.	
Order	Displays this message when an order is linked. A magnifying glass icon is displayed if the laboratory information system fails to process a message. A mouse-over displays a pop-up window containing the order ID.	

Function button

Refresh	Refreshes the messages view.
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Related information...

[Messages screen \(TWM\)](#), page 146

View the messages (TWM)

Perform this procedure to view the messages on the Track Workflow Manager (TWM).

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Messages**.
3. On the Messages screen, to refresh all messages from the last 30 minutes automatically, tap **Automatic refresh** in the drop-down list.
4. To refresh the messages manually, perform the following steps:

- a. Tap **Manual refresh** in the drop-down list.
- b. Enter the start date and end date of the messages.

NOTE: The date range is restricted to 24 hours.

- c. Tap **Refresh** to refresh the messages view.

Related information...

[Messages screen \(TWM\)](#), page 146

Instrument status screen (TWM)

On the Instrument status screen, the operator can perform the following functions:

- View the instrument status.
- Disable one or more instruments.
- Enable one or more instruments.
- Disable one or more tests of an instrument.
- Enable one or more tests of an instrument.

Related information...

[Main menu screen \(TWM\)](#), page 137

[Instrument status screen element descriptions \(TWM\)](#), page 149

[Tests of instrument screen element descriptions \(TWM\)](#), page 150

[View the instrument status \(TWM\)](#), page 150

[Disable an instrument \(TWM\)](#), page 151

[Enable an instrument \(TWM\)](#), page 151

[Disable the tests on the Instrument status screen \(TWM\)](#), page 151

[Enable the tests on the Instrument status screen \(TWM\)](#), page 152

[Menu overview screen element descriptions \(TWM\)](#), page 138

Instrument status screen element descriptions (TWM)

The Instrument status screen displays status and test information for instruments.

Elements

Filter	Displays a text box that is used to enter the expression to filter instruments.
Disabled instruments only	Displays a check box that is used to view the disabled instruments only.
With disabled tests only	Displays a check box that is used to view the instruments with disabled tests only.
TWM status	Displays a check box next to the TWM status column header. This check box is used to disable or enable all instruments at one time or to disable or enable all tests of an instrument at one time. Displays a check box and Track Workflow Manager status for each instrument row.
Name	Displays the instrument name.
Type	Displays the instrument type.
TSM status	Displays the Track Sample Manager status.
Tests (disabled/all)	Displays the number of disabled tests and the number of all tests.
Dis-/enable tests	Displays an icon that is used to toggle between disable tests and enable tests.

Function buttons

Refresh	Refreshes the screen.
Cancel	Cancels the changes.
Save	Saves the changes.

Related information...

[Instrument status screen \(TWM\)](#), page 148

Tests of instrument screen element descriptions (TWM)

The Tests of instrument screen displays the following screen elements.

Elements

Filter	Displays a text box that is used to enter the expression to filter tests.
Disabled tests only	Displays a check box that is used to view the instruments with disabled tests only.
TWM status	Displays a check box next to the TWM status column header. This check box is used to disable or enable all instruments at one time or to disable or enable all tests of an instrument at one time. Displays a check box and Track Workflow Manager status for each instrument row.
Test code	Displays the test code.
Type of analysis	Displays the type of analysis.

Function buttons

Cancel	Cancels the changes.
Save	Saves the changes.

Related information...

[Instrument status screen \(TWM\)](#), page 148

View the instrument status (TWM)

Perform this procedure to view the instrument status on the Track Workflow Manager (TWM).

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Instrument status**.
3. On the Instrument status screen, perform one of the following steps:
 - Tap the **Disabled instruments only** check box to display the disabled instruments.
 - Tap the **With disabled tests only** check box to display the instruments with disabled tests.

Related information...

[Instrument status screen \(TWM\)](#), page 148

Disable an instrument (TWM)

Perform this procedure to disable an instrument on the Track Workflow Manager (TWM). Individual analyzers or modules can be disabled so that they cannot be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Instrument status**.
3. On the Instrument status screen, tap to clear the blue check box in the **TWM status** column and in the row of the instrument to be disabled.

NOTE: To disable all instruments at one time, tap to clear the appropriate check box next to the **TWM status** column header.

4. Tap **Save**.

The instrument is now disabled.

Related information...

[Instrument status screen \(TWM\)](#), page 148

Enable an instrument (TWM)

Perform this procedure to enable an instrument on the Track Workflow Manager (TWM). Individual analyzers or modules can be enabled so that they can be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Instrument status**.
3. On the Instrument status screen, tap the white check box in the **TWM status** column and in the row of the instrument to be enabled.

NOTE: To enable all instruments at one time, tap the appropriate check box next to the **TWM status** column header.

4. Tap **Save**.

The instrument is now enabled.

Related information...

[Instrument status screen \(TWM\)](#), page 148

Disable the tests on the Instrument status screen (TWM)

Perform this procedure to disable the tests on the Instrument status screen of the Track Workflow Manager (TWM). Individual tests of an analyzer or module can be disabled so that they cannot be used as route targets.

1. On the TWM main menu, tap **Run**.

2. On the menu overview, tap **Instrument status**.
3. In the **Dis-/enable tests** column on the Instrument status screen, tap the appropriate instrument for which one or more tests are to be disabled.
4. When the tests of the analyzer or module selected are displayed, tap to clear the blue check box in the **TWM status** column and in the rows of the tests to be disabled.

NOTE: To disable all tests of an instrument at one time, tap to clear the appropriate check box next to the **TWM status** column header.

5. Tap **Save**.

The tests are now disabled.

Related information...

[Instrument status screen \(TWM\)](#), page 148

Enable the tests on the Instrument status screen (TWM)

Perform this procedure to enable the tests on the Instrument status screen of the Track Workflow Manager (TWM). Individual tests of an analyzer or module can be enabled so that they can be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Instrument status**.
3. In the **Dis-/enable tests** column on the Instrument status screen, tap the appropriate instrument for which one or more tests are to be enabled.
4. When the tests of the analyzer or module selected are displayed, tap the white check box in the **TWM status** column and in the rows of the tests to be enabled.

NOTE: To enable all tests of an instrument at one time, tap the appropriate check box next to the **TWM status** column header.

5. Tap **Save**.

The tests are now enabled.

Related information...

[Instrument status screen \(TWM\)](#), page 148

Test status screen (TWM)

On the Test status screen, the operator can perform the following functions:

- View the test status.
- Disable one or more tests by instrument.
- Enable one or more tests by instrument.
- Disable one or more tests by type of analysis.
- Enable one or more tests by type of analysis.

Related information...

[Main menu screen \(TWM\)](#), page 137

[Test status screen element descriptions \(TWM\)](#), page 153

[View the test status \(TWM\)](#), page 154

[Disable the tests by instrument on the Test status screen \(TWM\)](#), page 155

[Enable the tests by instrument on the Test status screen \(TWM\)](#), page 155

[Disable the tests by type of analysis on the Test status screen \(TWM\)](#), page 155

[Enable the tests by type of analysis on the Test status screen \(TWM\)](#), page 156

[Menu overview screen element descriptions \(TWM\)](#), page 138

Test status screen element descriptions (TWM)

The Test status screen displays the test status by instrument and by type of analysis.

By instrument button

Displays the Test status screen by instrument.

Filter	Displays a text box that is used to search for individual analyses if they have been assigned a type of analysis.
Disabled tests only	Displays a check box that is used to view the disabled tests only.
TWM status	Displays the status of the Track Workflow Manager.
Test code	Displays the test code.
Test	Displays the test name.
Instrument	Displays the instrument name.
TWM status (instrument)	Displays the status of the Track Workflow Manager by instrument.
TSM status (instrument)	Displays the status of the Track Sample Manager by instrument.

Function buttons

Refresh	Refreshes the screen.
Cancel	Cancels the changes.

Save Saves the changes.

By type of analysis button

Displays the Test status screen by type of analysis.

Type of analysis Displays a drop-down list that is used to select the type of analysis.

Filter Displays a text box that is used to enter the expression to filter tests.

Test code Displays the test code.

Test Displays the test name.

Instrument name Displays the analyzer status.

Function buttons

Cancel Cancels the changes.

Save Saves the changes.

Related information...

[Test status screen \(TWM\)](#), page 152

View the test status (TWM)

Perform this procedure to view the test status on the Track Workflow Manager (TWM).

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Test status**.
3. On the Test status overview, perform one of the following steps:
 - Tap **By instrument** to display the Test status screen by instrument.
 - Tap **By type of analysis** to display the Test status screen by type of analysis.

Related information...

[Test status screen \(TWM\)](#), page 152

Disable the tests by instrument on the Test status screen (TWM)

Perform this procedure to disable the tests by instrument on the Test status screen of the Track Workflow Manager (TWM). Individual tests of an analyzer or module can be disabled so that they cannot be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Test status**.
3. On the Test status overview, tap **By instrument** to display the Test status screen by instrument.
4. On the instrument view of the Test status screen, tap to clear the blue check box in the **TWM status** column and in the row of the tests to be disabled.
5. Tap **Save**.

The tests are now disabled.

Related information...

[Test status screen \(TWM\)](#), page 152

Enable the tests by instrument on the Test status screen (TWM)

Perform this procedure to enable the tests by instrument on the Test status screen of the Track Workflow Manager (TWM). Individual tests of an analyzer or module can be enabled so that they can be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Test status**.
3. On the Test status overview, tap **By instrument** to display the Test status screen by instrument.
4. On the instrument view of the Test status screen, tap the white check box in the **TWM status** column and in the rows of the tests to be enabled.
5. Tap **Save**.

The tests are now enabled.

Related information...

[Test status screen \(TWM\)](#), page 152

Disable the tests by type of analysis on the Test status screen (TWM)

Perform this procedure to disable the tests by type of analysis on the Test status screen of the Track Workflow Manager (TWM). Individual tests of an analyzer or module can be disabled so that they cannot be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Test status**.

3. On the Test status overview, tap **By type of analysis** to display the Test status screen by type of analysis.
4. On the analysis view of the Test status screen, tap the type of analysis in the **Type of analysis** drop-down list.
NOTE: When the type of analysis is selected, all analyses of the corresponding type and their associated instruments are displayed. To search for individual analyses, use the **Filter** text box if they have been assigned a type of analysis.
5. Tap to clear the blue check box in the **TWM status** column and in the row of the tests to be disabled.
6. Tap **Save**.

The tests are now disabled.

Related information...

[Test status screen \(TWM\)](#), page 152

Enable the tests by type of analysis on the Test status screen (TWM)

Perform this procedure to enable the tests by type of analysis on the Test status screen of the Track Workflow Manager (TWM). Individual tests of an analyzer or module can be enabled so that they can be used as route targets.

1. On the TWM main menu, tap **Run**.
2. On the menu overview, tap **Test status**.
3. On the Test status overview, tap **By type of analysis** to display the Test status screen by type of analysis.
4. On the analysis view of the Test status screen, tap the type of analysis in the **Type of analysis** drop-down list.
NOTE: When the type of analysis is selected, all analyses of the corresponding type and their associated instruments are displayed. To search for individual analyses, use the **Filter** text box if they have been assigned a type of analysis.
5. Tap the white check box in the **TWM status** column and in the rows of the tests to be enabled.
6. Tap **Save**.

The tests are now enabled.

Related information...

[Test status screen \(TWM\)](#), page 152

Connections screen (TWM)

On the Connections screen, the operator can view the incoming and outgoing connections to the Track Workflow Manager.

Related information...

[Main menu screen \(TWM\)](#), page 137

[Connections screen element descriptions \(TWM\)](#), page 157

[View the connections to TWM](#), page 157

[Menu overview screen element descriptions \(TWM\)](#), page 138

Connections screen element descriptions (TWM)

The Connections screen displays connection information.

Elements

Interface name	Displays the interface name.	
Connection direction	Displays the connection direction:	
	Incoming	For laboratory information system (LIS) and Track Sample Manager (TSM)
	Outgoing	For LIS and TSM
Connection status	Displays the connection status:	
	Green	The interface is connected.
	Red	The interface is not connected.
Connection identifier	Displays the connection identifier.	
Protocol version	Displays the protocol version.	
Local IP with port	Displays the local Internet protocol address.	
Remote IP with port	Displays the remote Internet protocol address.	
Unsent messages	Displays the number of unsent messages.	

Related information...

[Connections screen \(TWM\)](#), page 156

View the connections to TWM

Perform this procedure to view the incoming and outgoing connections to the Track Workflow Manager (TWM).

1. On the TWM main menu, tap **Run**.

2. On the menu overview, tap **Connections** to display information about the incoming and outgoing connections.
3. On the **Connections** tab, view the connection statuses, which are displayed as either green or red:

Green	The interface is connected.
Red	The interface is not connected.

Related information...

[Connections screen \(TWM\)](#), page 156

Workflow screen (TWM)

On the Workflow screen of the Track Workflow Manager, the Abbott Laboratories representative or the administrator can view the following information:

- Definition of final actions
- Configuration of fluid types, tests, and areas

Related information...

[Track Workflow Manager user interface](#), page 136

Master data screen (TWM)

On the Master data screen of the Track Workflow Manager, the Abbott Laboratories representative or the administrator can view the following information:

- Fluid types
- Tube types
- Types of analysis
- Tests
- Instruments
- Aliquots
- Centrifugation

Related information...

[Track Workflow Manager user interface](#), page 136

Admin screen (TWM)

On the Admin screen of the Track Workflow Manager, the Abbott Laboratories representative or the administrator can view the following information:

- Operator, timer, and parameter settings
- Data export

Related information...

[Track Workflow Manager user interface](#), page 136

Input/Output Module operation

The module-specific function selection for the Input/Output Module is displayed on the main menu. The operator selects the corresponding function and follows the instructions. Ensure that the module covers are closed and locked before operating the module.



CAUTION: Damage from sharp and hard objects. Sharp and hard objects can damage the surface of the monitor.

Related information...

[Operating instructions](#), page 87

[Open and close the front and rear module covers](#), page 160

[Power on the module](#), page 163

[Power off the module](#), page 164

[Place the module online](#), page 165

[Place the module offline](#), page 165

[Pause the module](#), page 166

[Deactivate pause mode](#), page 166

[Main menu screen \(IOM\)](#), page 167

[Load samples into FlexRacks](#), page 169

[Unload samples from FlexRacks](#), page 171

Open and close the front and rear module covers

Required module status Offline

Perform this procedure to open and close the front and rear module covers.



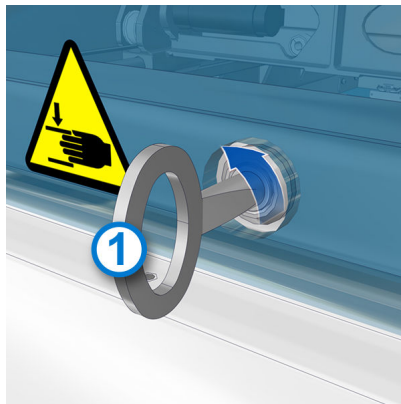
CAUTION: Overhead obstruction. Operators may hit their heads on open module covers.

- Be aware that injury or bodily harm can occur when module covers are opened and closed.
 - Protect the head when working on modules with open module covers.
 - Frequently observe the functionality of the opening mechanism. Regular visual inspection of the covers is necessary during maintenance to ensure proper operation.
1. At the lower end of the front or rear module cover, insert the unlock key [1] into the unlock mechanism [2].

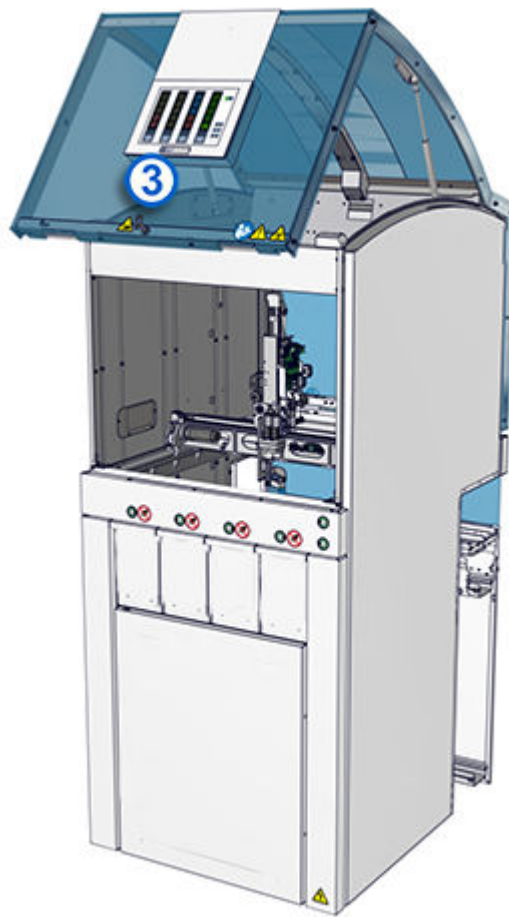
NOTE: Images of the rear module cover are not shown.



2. Turn the unlock key [1] counterclockwise a quarter turn.



3. Remove the unlock key [1] from the unlock mechanism [2].
4. Lift open the front module cover [3] or the rear module cover.



5. To close the front module cover [3] or the rear module cover, carefully pull down the cover.
6. Press lightly on the cover until it is secured.
7. Place the module online.

Related information...

Input/Output Module operation, page 160

Place the module online, page 165

Track overview, page 34

Input/Output Module technical data, page 85

Input/Output Module maintenance checks, page 207

Clean the monitor, page 202

Clean the module covers, page 203

Replace the gripper fingers, page 306

Power on the module

Prerequisite

- The module is connected to the power supply.
- The On/Off push button on the front of the module blinks green.
- Front and rear module covers must be closed and locked.

Required module status

Off for more than 1 minute

Perform this procedure to power on the module.



CAUTION: Risk of impact during module initialization. During initialization, the drawers on the front side of the module open and close automatically. Injuries may occur if the distance between the operator and module is insufficient. Maintain a sufficient distance to the module during initialization and keep the area clear of objects.



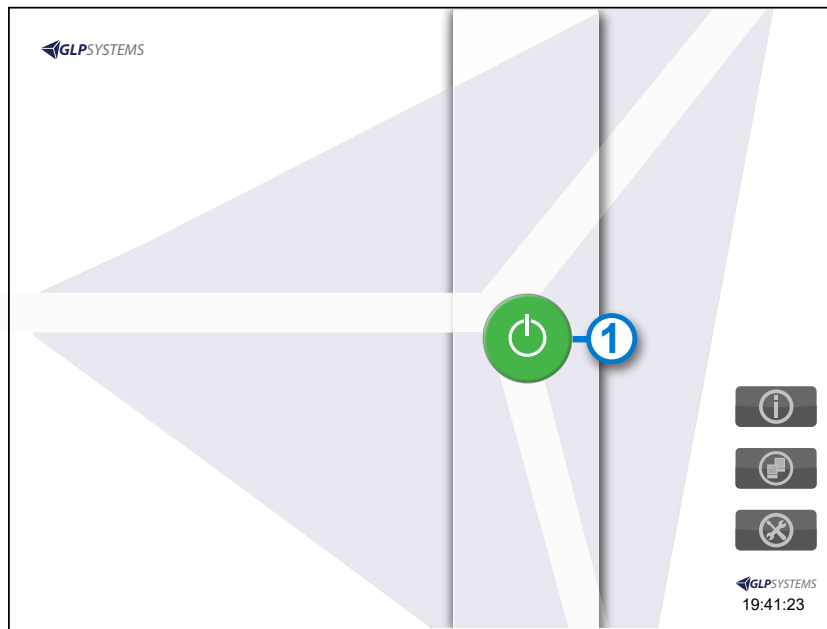
CAUTION: DO NOT REACH INTO DRAWERS. Injury or bodily harm can occur when accessing the module interior while the module is powered on. Do not access the drawers while they are opening or closing. Only load the samples when the drawers are fully open. The drawer push button blinks when it is unsafe to access the drawer. **Never reach into the module through the drawers.**

1. Press the On/Off push button on the front of the module for a minimum of 3 seconds.

The On/Off push button blinks green at a higher rate, the module starts, and a red light is displayed briefly next to the touchscreen user interface.

The Start screen is displayed. The **Start** button [1] is illuminated steady green when the module is ready for initialization.

Figure 16: Start screen



2. Tap the **Start** button [1] to initialize the module.

A screen with a rotating animation is displayed. After the module is initialized, the main menu is displayed.

The On/Off push button is illuminated steady green.

Related information...

[Input/Output Module operation](#), page 160

[Replace the gripper fingers](#), page 306

Power off the module

Prerequisite

- The On/Off push button is illuminated steady green.
- The module has completed all processing and no samples are present on the module.

Required module status

On

Perform this procedure to power off the module.

1. Press the On/Off push button on the front of the module for a minimum of 3 seconds.
2. Wait for the module to power off.

The On/Off push button blinks green.

Related information...

[Input/Output Module operation](#), page 160

Place the module online

Prerequisite

- The Online/Offline push button is illuminated steady yellow.
- The arrow area of the **Online/Offline** button is gray.

Required module status

Offline

Perform this procedure to place the module online.

1. Briefly press the Online/Offline push button or tap the gray area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Online.

The Online/Offline push button and the **Online/Offline** button are illuminated steady green.

Related information...

[Input/Output Module operation](#), page 160

[Delete an area](#), page 63

[Open and close the front and rear module covers](#), page 160

Place the module offline

Prerequisite

The Online/Offline push button and the **Online/Offline** button are illuminated steady green.

Required module status

Online

Perform this procedure to place the module offline. All processes running in the module stop. CARs are no longer routed to the module.

1. Press the Online/Offline push button on the front of the module for a minimum of 3 seconds or tap the green arrow area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Offline.

The Online/Offline push button is illuminated steady yellow. The arrow area of the **Online/Offline** button is gray.

Related information...

[Input/Output Module operation](#), page 160

[Delete an area](#), page 63

Pause the module

Prerequisite The Online/Offline push button and the **Online/Offline** button are illuminated steady green.

Required module status Online

Perform this procedure to pause the module.

The pause function is activated by using the Online/Offline push button. When the module is paused, all processes running in the module stop. However, the connection to the Track Sample Manager remains intact. CARs are still routed to the module.

1. Briefly press the Online/Offline push button or tap the gray area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Pause.

The Online/Offline push button and the **Online/Offline** button blink green.

NOTE: If the module is paused for longer than 5 minutes, the module automatically transitions to a status of Offline.

Related information...

[Input/Output Module operation](#), page 160

Deactivate pause mode

Prerequisite The Online/Offline push button and the **Online/Offline** button blink green.

Required module status Pause

Perform this procedure to deactivate pause mode on the module.

1. Briefly press the Online/Offline push button or tap on the gray area of the **Online/Offline** button on the touchscreen user interface.
2. Wait for the module to transition to a status of Online.

The Online/Offline push button and the **Online/Offline** button are illuminated steady green.

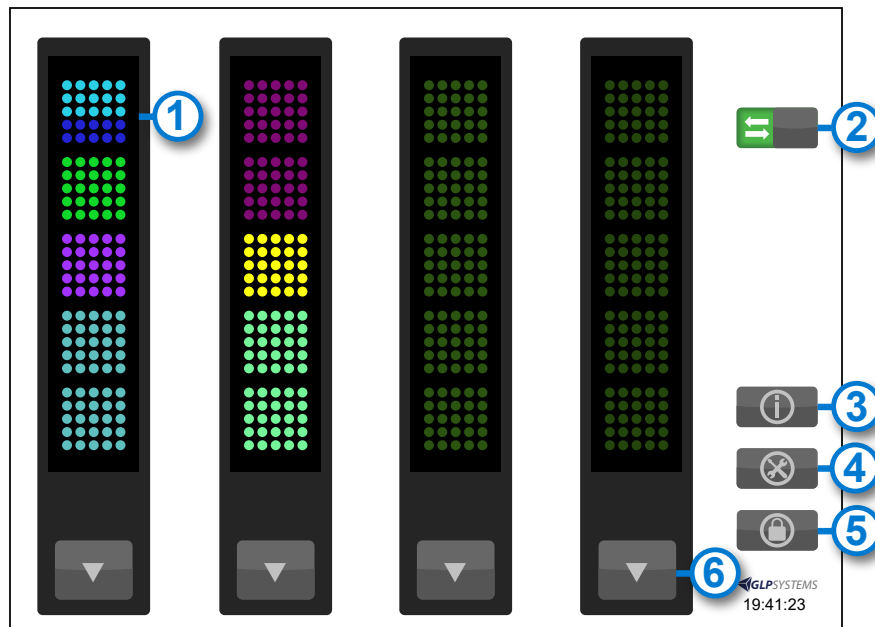
Related information...

[Input/Output Module operation](#), page 160

Main menu screen (IOM)

After successful initialization of the Input/Output Module (IOM), the main menu is displayed with the following screen elements.

Figure 17: Main menu screen (IOM)

**Legend:**

1. Drawer image: Shows the drawers equipped with FlexRacks and configured areas.
2. **Online/Offline** button with pause function: Places the module online and offline, and pauses the module.
3. **Information** button: Navigates to information.
4. **Configuration** button: Navigates to configuration.
5. **Login** button: Navigates to the Login screen.
6. **Open/Close** drawer button: Opens and closes the drawers.

Related information...

[Input/Output Module operation](#), page 160

[Access the Login screen](#), page 168

[Access the Information screen](#), page 168

[Access the Configuration screen](#), page 168

Access the Login screen

Prerequisite A password was defined during installation.

NOTE: The **Login** button is available only to an Abbott Laboratories representative or an authorized service representative.

Required module status Online or Offline

Perform this procedure to access the Login screen on the module.

NOTE: Configuration of the operator login is performed by an Abbott Laboratories representative or an authorized service representative.

1. On the main menu, tap the **Login** button .
2. On the Login screen, enter the login information.
3. To return to the main menu, tap the **Exit** button.

Related information...

[Main menu screen \(IOM\)](#), page 167

Access the Information screen

Required module status Online or Offline

Perform this procedure to access the Information screen on the module.

1. On the main menu, tap the **Information** button .
2. On the Information screen, tap the **Exit** button to return to the main menu.

Related information...

[Main menu screen \(IOM\)](#), page 167

Access the Configuration screen

Required module status Online or Offline

Perform this procedure to access the Configuration screen on the module.

1. On the main menu, tap the **Configuration** button .
2. On the Configuration screen, tap the **Exit** button to return to the main menu.

Related information...

[Main menu screen \(IOM\)](#), page 167

Load samples into FlexRacks

Prerequisite Become familiar with sample specifications and requirements and sample bar code label requirements.

Required module status Online

Perform this procedure to load sample tubes into FlexRacks in the module drawer.



CAUTION: Biological RISKS. This activity or area may expose you to potentially infectious material.



CAUTION: DO NOT REACH INTO DRAWERS. Injury or bodily harm can occur when accessing the module interior while the module is powered on. Do not access the drawers while they are opening or closing. Only load the samples when the drawers are fully open. The drawer push button blinks when it is unsafe to access the drawer. **Never reach into the module through the drawers.**



CAUTION: Incorrectly loaded samples may constitute a health hazard for patients. The input area can be configured in different ways, which may increase the risk of samples being loaded incorrectly. Samples loaded in the wrong area can cause delayed or incorrect results, and can cause highly sensitive analyzers to malfunction. Only allow trained personnel to operate the laboratory automation system (LAS). Ensure that samples are loaded into the defined area for the sample type (for example, centrifuged, uncentrifuged, capped, or uncapped) on the LAS.

Figure 18: Sample tubes in FlexRacks in the module drawer



1. To open the appropriate drawer, press the push button above the drawer (or tap the **Open/Close** button on the touchscreen user interface).

IMPORTANT: Do not pull on the drawer handle to open the drawer. Pulling on the drawer handle causes an error status for the drawer and does not fully open the drawer.

2. Load sample tubes in the correct area according to tube type, capped, uncapped, spun, or unspun.

IMPORTANT: Samples loaded in the wrong area can cause delayed or incorrect results.

3. Verify that each sample has a bar code label.
4. Load the sample tubes in a straight, upright position.
5. Be sure to seat the sample tubes correctly in the FlexRacks.
6. To close the drawer, press the push button above the drawer (or tap the **Open/Close** button on the touchscreen user interface).

Related information...

[Input/Output Module operation](#), page 160

[Sample tube specifications](#), page 80

[Sample bar code label requirements](#), page 79

[Replace a FlexRack](#), page 308

Unload samples from FlexRacks

Required module status Online

Perform this procedure to unload sample tubes from FlexRacks in the module drawer.



CAUTION: Biological RISKS. This activity or area may expose you to potentially infectious material.



CAUTION: DO NOT REACH INTO DRAWERS. Injury or bodily harm can occur when accessing the module interior while the module is powered on. Do not access the drawers while they are opening or closing. Only load the samples when the drawers are fully open. The drawer push button blinks when it is unsafe to access the drawer. **Never reach into the module through the drawers.**

1. To open the appropriate drawer, press the push button above the drawer (or tap the **Open/Close** button on the touchscreen user interface).

IMPORTANT: Do not pull on the drawer handle to open the drawer. Pulling on the drawer handle causes an error status for the drawer and does not fully open the drawer.

2. Remove the sample tubes from the FlexRack.
3. To close the drawer, press the push button above the drawer (or tap the **Open/Close** button on the touchscreen user interface).

Related information...

[Input/Output Module operation](#), page 160

[Replace a FlexRack](#), page 308

NOTES

Introduction

The GLP systems Track does not require calibration.

NOTES

Introduction

For optimal operator safety and accurate test results, comply with operational requirements, precautions, and limitations. Operators must be trained before they are allowed to operate the system. Failure to comply can affect system performance, and may cause damage to the system or may adversely affect test results.

Related information...

Covers, hoods, and sensors, page 176

Requirements for handling the specimens, page 178

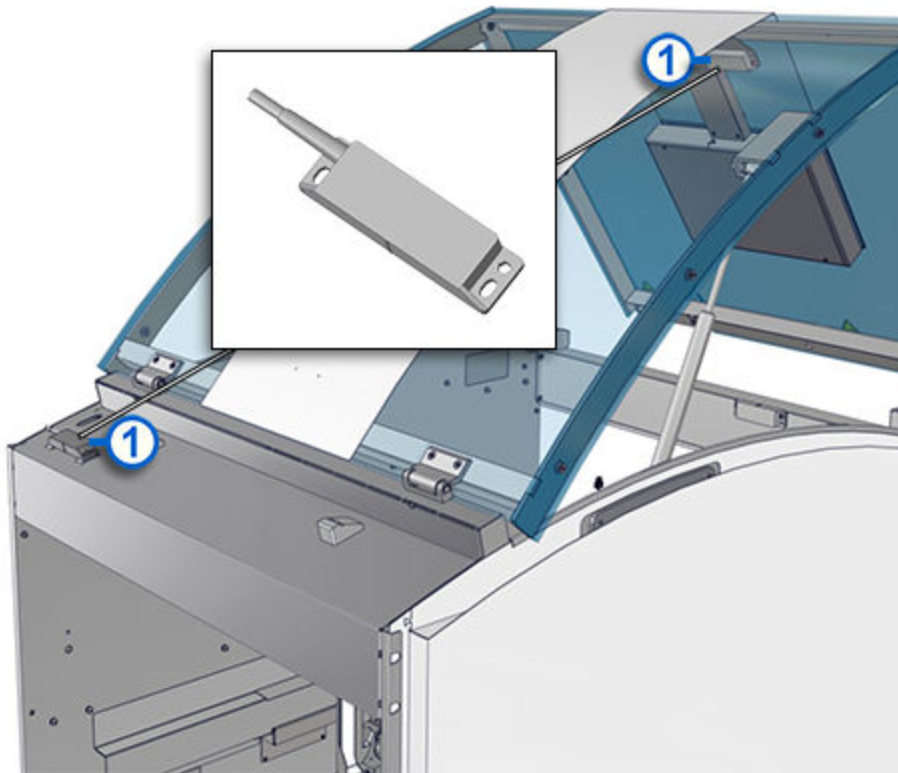
General safety information, page 8

Covers, hoods, and sensors

Electronic sensors should not be circumvented or removed from operation. The following components are fitted on the laboratory automation system:

- Contact sensors on the module covers, doors, and drawers
- Photoelectric sensors on the module drawers
- Covers on the modules and hoods on the track elements

Figure 19: Module contact sensors



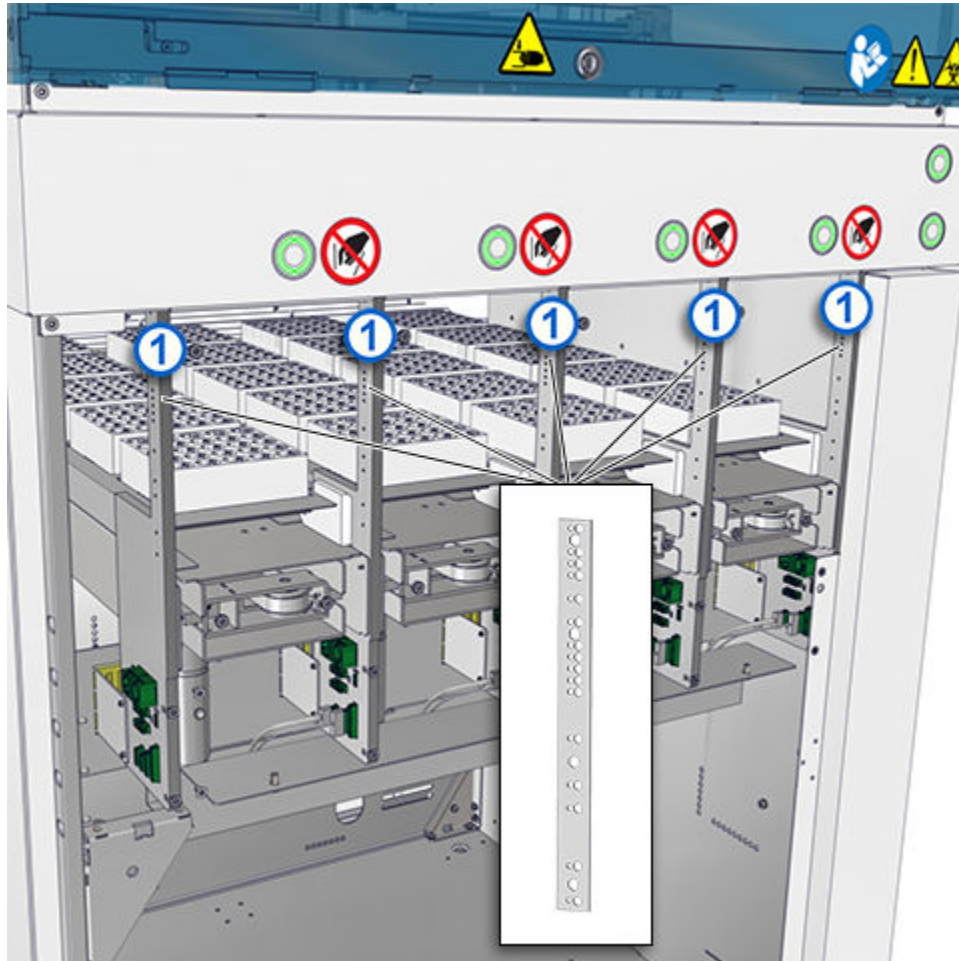
Legend:

1. Module contact sensors: Opening the module covers slows down the robot movement. The module covers and track hoods provide protection against direct access.



CAUTION: To prevent operator injury, the module status must be transitioned to Offline before the module interior is accessed.

Figure 20: Photoelectric sensors

**Legend:**

1. Photoelectric sensors: These components are located on the sides of the drawer inserts and form a light grid. They detect the loading status of RackPorts and any manual intervention in the drawer. They are used to stop the closing operation if an object or body part is placed between the drawers and the housing.

NOTE: Some modules have additional components. For more information, see the appropriate manual.

Related information...

Operational precautions and limitations, page 175

Requirements for handling the specimens

Consider all specimens as potentially infectious. In addition, consider all system surfaces or components that have come in contact with specimens as potentially infectious.



CAUTION: Biological RISKS. This activity or area may expose you to potentially infectious material.

Related information...

Operational precautions and limitations, page 175

Introduction

To minimize the potential for harm to personnel and damage to the laboratory environment, comply with the hazard and safety information.

This section contains supplemental information. Do not use the supplemental information to supersede workplace safety requirements. Review any significant differences between the supplemental information and the workplace safety requirements with management or a workplace safety representative.

Related information...

Operator responsibility, page 180

Safety icons, page 181

Biological hazards, page 183

Basic safety, page 185

CAR safety, page 188

Laser safety, page 189

Spill cleanup, page 190

Requirements for decontamination, page 191

Input/Output Module safety, page 192

General safety information, page 8

Operator responsibility

Use the system only according to its designed purpose. Operators must be trained before operating the system. Failure to comply with safe-use instructions may cause personal injury, harm the environment, damage the system, or adversely affect test results.

Related information...

[Hazards](#), page 179

Safety icons

Safety icons are used on the system and in the system documentation to identify potentially dangerous conditions. Become familiar with these icons to know the type of potential hazard.

Table 19: Safety icons and descriptions

Icon	Description
	CAUTION: Biological RISKS Identifies an activity or an area where the operator may be exposed to potentially infectious material.
	CAUTION: Class 2 Laser radiation when open. Avoid eye exposure to light. Do not stare into the beam. Warns against the direct viewing of the beam or reflections from the beam.
	CAUTION: Hot Surface Identifies an activity or an area where the operator may be exposed to hot surfaces.
	CAUTION: Mind or watch your hands Identifies an activity or an area where the operator may be exposed to hand injuries.
	CAUTION: Overhead obstruction Identifies an activity or an area where the operator may be exposed to overhead obstructions.
	CAUTION: Possibility of electric shock Indicates the possibility of electric shock if procedural controls or engineering controls are not observed.
	CAUTION: Sharp Element Identifies an activity or an area where the operator may be exposed to sharp elements.
	CAUTION When used in this manual, this icon is accompanied by a description of the hazard and a related-information reference to safety content in this section. Examples include the following condition: CAUTION: Moving Parts Identifies an activity or an area where the operator may be exposed to moving parts.
	CAUTION: Disconnect Mains Plug Identifies a main electrical disconnect.
	CAUTION: Do not reach inside Identifies an activity or an area where the operator may be exposed to injury or bodily harm.

Icon	Description
	Observe operations manual Indicates that the operations manual must be read.
	WEEE: Waste Electrical and Electronic Equipment Indicates that the item needs to be disposed of in a separate waste collection for electrical and electronic equipment and must not be disposed of in the general waste or trash.

Related information...

[Hazards](#), page 179

Biological hazards

Exposure to potentially infectious materials may occur when the following activities are performed:

- Handling of specimens
- Spill cleanup
- Waste handling and disposal
- System relocation
- Maintenance procedures
- Decontamination procedures
- Component replacement procedures

Comply with the precautions to help minimize the impact of this exposure.

Related information...

[Hazards](#), page 179

[Precautions](#), page 183

Precautions

Consider as potentially infectious all system surfaces, components, and consumables that have come in contact with human-sourced materials. No known test method can offer complete assurance that products derived from human-sourced materials do not transmit infection.

It is recommended that all potentially infectious materials are handled according to the OSHA Standard on Bloodborne Pathogens¹. Use Biosafety Level 2² or appropriate regional, national, and institutional biosafety practices^{3,4} for materials that contain, are suspected of containing, or are contaminated with infectious agents. Precautions include the following actions:

- When handling human-sourced materials or contaminated system components:
 - Wear gloves, a lab coat, and protective eyewear.
 - Do not eat, drink, smoke, apply cosmetics, or handle contact lenses.
- Do not pipette by mouth.
- Clean spills of potentially infectious materials and contaminated system components with a detergent. Then mist or wipe the surface with 0.5% sodium hypochlorite solution. Let the disinfectant remain on the surface for a minimum of 10 minutes of contact time.
- Decontaminate and dispose of all samples, reagents, and other potentially contaminated materials in accordance with local, state, and national regulations.

Immediately clean an affected area if any exposure to biohazardous or potentially infectious materials occurs:

Eyes	Rinse with water for 15 minutes.
Mouth	Rinse with water.
Skin	Wash the affected area with soap and water. Apply alcohol, povidone iodine, chlorhexidine, or another antiseptic.
Puncture wound	Let the wound bleed freely. Wash the affected area with soap and water.

Seek medical attention as soon as possible for appropriate follow-up.

Bibliography references

1. US Department of Labor, Occupational Safety and Health Administration, 29 CFR Part 1910.1030, Bloodborne pathogens.
2. US Department of Health and Human Services. *Biosafety in Microbiological and Biomedical Laboratories*. 6th ed. Washington, DC: US Government Printing Office; June 2020.
3. World Health Organization. *Laboratory Biosafety Manual*. 4th ed. Geneva: World Health Organization; 2020.
4. Clinical and Laboratory Standards Institute (CLSI). *Protection of Laboratory Workers From Occupationally Acquired Infections; Approved Guideline--Fourth Edition*. CLSI Document M29-A4. Wayne, PA: CLSI; 2014.

Related information...

[Biological hazards](#), page 183

Basic safety

The following hazard information and safety instructions are applicable to laboratory automation system (LAS) operation.



CAUTION: Device generates magnetic fields. Any person with a pacemaker or other similar implanted devices should exercise caution during LAS operation.



CAUTION: Radio-frequency identification (RFID) devices. The operator should not change or modify RFID devices without approval by the party responsible for compliance. This action could void the operator's authority to operate the equipment.



CAUTION: Radio frequency exposure. The operator should be at least 20 cm from all RFID devices.



CAUTION: Mind or watch your hands. The front and rear module covers can be opened **only** with the unlock key and **only** by a trained operator. Before reaching into the module, ensure that the robot status is Offline **and** that the robot slows down significantly. **Keep away from the moving robot and close the module covers as soon as possible.**



CAUTION: Do not reach inside. The rear module cover can be opened **only** with the unlock key. **Never reach into the module from the rear module cover.**



CAUTION: Possibility of electric shock. This activity or area may expose you to electrical shock.



CAUTION: Danger of electrical voltage. Cables and electrical components are located in correspondingly identified areas. Inappropriate handling poses a health hazard and can damage the components.

- Only allow trained electricians to work in these areas.
- Interrupt the supply voltage before working in these areas.



CAUTION: Risk of contamination and injury. During LAS operation, sample tubes and components may be damaged due to inattentive handling. Infected sample matter that leaks from the system may expose the operator to infections due to skin contact with the sample matter.

- Wear personal protective equipment while operating the LAS. Avoid direct contact with the sample matter.
- Follow all hygiene regulations applicable to laboratory work.
- Only allow trained personnel to operate the LAS.



CAUTION: Contamination hazards and misdiagnosis. During LAS operation, sample tubes and components may be damaged due to inattentiveness while handling samples. Sample matter leaks may cause cross contamination with other sample matter and a subsequent misdiagnosis.

- Follow all disinfection instructions specified by the laboratory.
- For any affected samples, have the test result assessed separately by trained personnel.



CAUTION: Incorrect results caused by manual intervention on the LAS. Manual intervention or exchanging of samples can cause incorrect assignment of test results and incorrect patient diagnoses.

- Do not exchange samples in CARs on the LAS.
- Only allow trained personnel to operate the LAS.
- Only use the specified input and output areas to intervene on the LAS.



CAUTION: Incorrect results may constitute a health hazard. Sample contamination can occur if a robotic arm drops an open sample tube. Sample contamination can cause delayed or incorrect results, or incorrect patient diagnoses.

- Only allow trained personnel to operate the LAS.
- Specifically assess the situation each time after a fault has occurred.



CAUTION: Delayed analysis due to power failure. In the case of a power failure, the samples (including emergency samples) will remain inside the LAS and must be removed manually as required.

- Only allow trained personnel to remove the samples manually.
- If a sample is held by a robot gripper, manually remove the sample.
- Observe the LAS for any remaining emergency samples and remove them manually.
- Follow the information in the operations manuals for the modules.



CAUTION: Overhead obstruction. Operators may hit their heads on open module covers.

- Be aware that injury or bodily harm can occur when module covers are opened and closed.
- Protect the head when working on modules with open module covers.

NOTE: If the power supply is interrupted, the current status of the modules is saved and the modules are powered off automatically. The data is also saved. As soon as the power supply has been restored, the modules must be initialized manually.

NOTE: For optimal system performance, comply with the following general requirements of the system:

- Perform frequent visual inspections of the entire LAS.
- Adhere to the LAS maintenance schedule.
- Do not use transmitters, such as mobile phones, in the immediate vicinity of the LAS.
- Do not place objects on the module covers and track hoods.
- Confirm that faulty samples are directed into an error area.

- Only use approved customer-replaceable components on the LAS.
- Only use Abbott consumables. All consumables are intended for single-use only.
- Follow all necessary precautions to provide electrostatic discharge protection.
- For information related to Article 33 of the EU REACH regulation (EC 1907/2006, Registration, Evaluation, Authorisation, and Restriction of Chemicals), go to pmis.abbott.com. For website logon issues, contact Abbott Laboratories at abbott.REACH@abbott.com. Follow all necessary precautions to provide electrostatic discharge protection.
- To view the China RoHS 2 Hazardous Substance tables, in accordance with the People's Republic of China Electronic Industry Standard SJ/T 11364-2014, go to corelaboratory.abbott.com/registration-ous (select Technical Library > Other Reference Documents > China RoHS Hazardous Substance Tables).

Related information...

[Hazards](#), page 179

[Sample tube specifications](#), page 80

[Spill cleanup](#), page 190

CAR safety



CAUTION: Rechargeable lithium battery fire and explosion hazards. The CARs contain lithium polymer batteries. Charging deep-discharged batteries or incorrectly handling batteries will result in a risk of fire and explosion.

- Do not repair or replace CAR batteries.
- Do not store CARs where they could be impacted by mechanical force. Treat the CARs as FRAGILE to ensure the plastic material contains no openings or cracks. If the plastic is cracked, dispose of the CAR according to local regulations for lithium battery disposal.
- Regularly maintain the CARs.
- Do not charge a CAR if it fails to respond to an activation attempt. Failure to respond indicates a deep-discharged lithium battery.
- Store CARs in a cool, dry environment away from any heat source, such as heaters, lamps, or direct sunlight.
- Do not store any defective CARs.
- Ensure that any defective CARs are immediately repaired or disposed of in an appropriate manner.
- Do not dispose of CARs in a fire or heater. Adhere to local regulations for lithium battery disposal.

No safety indications are attached to the CAR.

Related information...

[Hazards](#), page 179

Laser safety

GLP systems Track is a CLASS 1 LASER PRODUCT.



CAUTION: Use of controls or adjustments or performance of procedure other than those specified herein may result in hazardous radiation exposure.

The Aliquot Module and the Sample Access Line each contain two embedded Class 2 Laser bar code readers.

Although momentary exposure to a Class 2 laser (1 mW maximum power, 650 nm wavelength with a pulse duration of 91 μ s) is not known to be harmful due to the blink reflex, failure to follow appropriate procedures may result in a hazardous situation.

- Do not look into the aperture.
- Do not stare directly into the beam.
- Do not place any objects into the beam.
- Do not remove any protective covers or beam blocks.

Only an Abbott Laboratories service representative or an authorized service representative should service the laser. The protective covers should only be removed by an Abbott Laboratories service representative or an authorized service representative. The bar code reader is not serviceable and should be replaced **ONLY** by an Abbott Laboratories service representative or an authorized service representative.

Related information...

[Hazards](#), page 179

Spill cleanup

Clean spills according to established biosafety practices and follow instructions in the Safety Data Sheets. In general, safe work practices for spill cleanup include the following requirements:

1. Wear appropriate personal protective equipment, such as gloves, a lab coat, and eyewear.
2. Absorb the spill with an absorbent material.
3. Wipe the spill area with a detergent.
4. Wipe the spill area with 0.5% sodium hypochlorite solution. Let the disinfectant remain on the surface for a minimum of 10 minutes of contact time.
5. Dispose of all absorbent material and wipes according to local, state, and national regulations.

Related information...

[Hazards](#), page 179

[Basic safety](#), page 185

Requirements for decontamination

Sodium hypochlorite and other disinfectants are typically hazardous chemicals that react with many chemicals, materials, and living tissues. To reduce the potential for exposure to disinfectants, comply with the following general precautions:

- Obtain and review the manufacturer's safety information before using any disinfectant.
- Wear appropriate personal protective equipment (such as gloves, a lab coat, and eyewear) when performing decontamination activities.

Related information...

[Hazards](#), page 179

Input/Output Module safety



CAUTION: Biological RISKS. This activity or area may expose you to potentially infectious material.



CAUTION: Risk of infection due to skin contact. The operator may be exposed to serious injury, including death or infections, due to skin contact with infected sample matter. Wear personal protective equipment during operation.



CAUTION: To prevent operator injury, the module status must be transitioned to Offline before the module interior is accessed.



CAUTION: Moving parts. The operator may be injured by moving parts inside the module.

- Do not reach into the module while the module covers are closed.
- Be aware of moving parts while the module covers are open.
- Keep the module covers closed and locked during operation.



CAUTION: Incorrectly loaded samples may constitute a health hazard for patients.

The input area can be configured in different ways, which may increase the risk of samples being loaded incorrectly. Samples loaded in the wrong area can cause delayed or incorrect results, and can cause highly sensitive analyzers to malfunction. Only allow trained personnel to operate the laboratory automation system (LAS). Ensure that samples are loaded into the defined area for the sample type (for example, centrifuged, uncentrifuged, capped, or uncapped) on the LAS.



CAUTION: Overhead obstruction. Operators may hit their heads on open module covers.

- Be aware that injury or bodily harm can occur when module covers are opened and closed.
- Protect the head when working on modules with open module covers.

NOTE: Follow all safety information in this manual. All work not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.

NOTE: Only use sample tubes that are approved for the LAS.

Related information...

[Hazards](#), page 179

[Sample tube specifications](#), page 80

Introduction

The appropriate service, maintenance, and diagnostics of the system are important aspects of a complete quality assurance program. A thorough service, maintenance, and diagnostic program:

- Minimizes downtime.
- Maintains records for inspection and accreditation.
- Maintains system performance to provide optimal test results.

NOTE: Only approved customer-replaceable components are permitted to be used.

Related information...

[Track maintenance](#), page 194

[CAR maintenance](#), page 197

[Input/Output Module maintenance](#), page 202

Track maintenance

A daily visual inspection of the track is recommended. Sample matter found on the track may indicate mechanical malfunctions.



CAUTION: Sharp Element. Injuries to the operator may occur due to sharp edges on metal parts. Wear safety gloves when detaching and attaching the side casing sheets of the support system during maintenance and repair work.

NOTE: Follow all safety information in this manual. All work not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.

Related information...

[Service, maintenance, and diagnostics](#), page 193

[Track cleaning](#), page 194

[Track maintenance checks](#), page 196

Track cleaning

Some track components may need to be cleaned because of normal use from daily system operations or because of spills.



CAUTION: Risk of deformed lane element. Do not use a dishwasher to clean the lane elements as it may cause deformities. Only use a laboratory-grade surface disinfectant or a mild, nongreasing cleaning agent to clean the lane elements.

IMPORTANT: Inappropriate cleaning may cause sample contamination. The use of unsuitable cleaning agents may cause damage to the laboratory automation system (LAS). Only allow trained personnel to clean the LAS. Only use the recommended cleaning agents.

Related information...

[Track maintenance](#), page 194

[Weekly cleaning procedure](#), page 194

[As-needed cleaning procedures](#), page 195

Weekly cleaning procedure

A weekly cleaning procedure is required on the track system.

Related information...

[Track cleaning](#), page 194

[Clean the track hood](#), page 195

Clean the track hood

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth

Perform this weekly procedure to clean the track hood.

NOTE: To avoid sample contamination, perform maintenance procedures only when no samples are present.

1. Dampen a lint-free cloth with a surface disinfectant.
2. Carefully wipe the track hood to remove any dust.

Related information...

[Weekly cleaning procedure](#), page 194

As-needed cleaning procedures

As-needed cleaning procedures are required on the track system.

Related information...

[Track cleaning](#), page 194

[Clean the lane elements](#), page 195

[Clean the guiding slot](#), page 196

Clean the lane elements

Required materials

- Handheld vacuum (recommended)
- Laboratory-grade surface disinfectant
- Lint-free cloth

Perform this as-needed procedure to clean the lane elements.

NOTE: To avoid sample contamination, perform maintenance procedures only when no samples are present.

1. Remove dust from the lane elements with the handheld vacuum cleaner.
2. Dampen a lint-free cloth with a surface disinfectant.
3. Carefully wipe the lane elements to remove any dust.

Related information...

[As-needed cleaning procedures](#), page 195

Clean the guiding slot

Required materials

- Extra thin cotton swab
- Soft brush

Perform this as-needed procedure to clean the guiding slot.

NOTE: To avoid sample contamination, perform maintenance procedures only when no samples are present.

1. Carefully remove any dust from the guiding slot with a cotton swab.
2. Carefully remove any dust from the guiding slot with a soft brush.

Related information...

[As-needed cleaning procedures](#), page 195

Track maintenance checks

The following maintenance checks are required for the track to maintain optimal system performance.

Maintenance check	Interval
Verify that the cross switch controllers are free from dust or foreign objects.	Daily
Verify that the track hoods are closed and locked.	Daily
Verify that the lane elements are free from damage or dust.	Weekly

Related information...

[Track maintenance](#), page 194

[Unlock and lock the track hoods](#), page 96

CAR maintenance

A daily visual inspection of the CARs is recommended.

IMPORTANT: The CARs must be serviced by an Abbott Laboratories representative or an authorized service representative at least one time each year.

NOTE: Follow all safety information in this manual. All work not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.

Related information...

Service, maintenance, and diagnostics, page 193

CAR cleaning, page 197

CAR maintenance checks, page 200

CAR cleaning

Some CAR components may need to be cleaned because of normal use from daily system operations or because of spills.



CAUTION: Material damage due to incorrect cleaning. Incorrect cleaning may damage the electronics in the CAR. Regularly clean and maintain the CARs. Only use the recommended cleaning agents. Keep liquid or moisture from entering the CARs.

Related information...

CAR maintenance, page 197

Weekly cleaning procedure, page 197

Monthly cleaning procedure, page 198

Quarterly cleaning procedure, page 198

As-needed cleaning procedures, page 199

Weekly cleaning procedure

A weekly cleaning procedure is required on the CARs.

Related information...

CAR cleaning, page 197

Clean the sensors, page 197

Clean the sensors

Required materials

- Lint-free brush
- Lint-free cloth

Perform this weekly procedure to clean the sensors on the CARs.

NOTE: Only clean the empty CARs.

1. Carefully remove any dust from the sensors with a lint-free brush.
2. Carefully remove any dust from the sensors with a lint-free cloth.

Related information...

[Weekly cleaning procedure](#), page 197

Monthly cleaning procedure

A monthly cleaning procedure is required on the CARs.

Related information...

[CAR cleaning](#), page 197

[Clean the housing](#), page 198

Clean the housing

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth

Perform this monthly procedure to clean the housing on the CARs.

NOTE: Only clean the empty CARs.

1. Dampen a lint-free cloth with a surface disinfectant.
2. Carefully wipe the housing to remove any dust.

Related information...

[Monthly cleaning procedure](#), page 198

Quarterly cleaning procedure

A quarterly cleaning procedure is required on the CARs.

Related information...

[CAR cleaning](#), page 197

[Clean the charging contacts](#), page 198

Clean the charging contacts

Required materials

- Cotton swabs
- 99% isopropanol

Perform this quarterly procedure to clean the charging contacts on the CARs.

NOTE: Only clean the empty CARs.

1. Wet a cotton swab with 99% isopropanol.
2. Carefully remove any dust from the charging contacts.

Related information...

[Quarterly cleaning procedure](#), page 198

As-needed cleaning procedures

As-needed cleaning procedures are required on the CARs.

Related information...

[CAR cleaning](#), page 197

[Clean the sample holder](#), page 199

[Clean the drive wheel and the wheel arch](#), page 199

Clean the sample holder

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth

Perform this as-needed procedure to clean the sample holder on the CARs.

NOTE: Only clean the empty CARs.

1. Dampen a lint-free cloth with a surface disinfectant.
2. Carefully wipe the sample holder to remove any dust.

Related information...

[As-needed cleaning procedures](#), page 199

Clean the drive wheel and the wheel arch

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth

Perform this as-needed procedure to clean the drive wheel and the wheel arch on the CARs.

NOTE: Only clean the empty CARs.

1. Dampen a lint-free cloth with a surface disinfectant.
2. Carefully wipe the drive wheel and the wheel arch to remove any dust.

Related information...

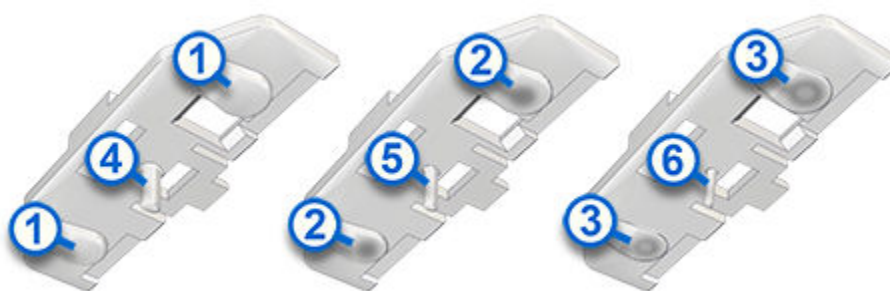
[As-needed cleaning procedures](#), page 199

CAR maintenance checks

The following maintenance checks are required for the CARs to maintain optimal system performance.

Maintenance check	Activity	Interval
Verify that the guiding pin is not worn.	Replace the front underseal if necessary.	Weekly
Verify that the sliders are not worn.	Replace the front underseal if necessary.	Weekly
Verify that the drive wheel is free of dust or malfunctions.	Carefully remove any dust. See the cleaning procedures in this manual. Contact an Abbott Laboratories representative or an authorized service representative if necessary.	Weekly
Verify that the sample holder is not defective.	Contact an Abbott Laboratories representative or an authorized service representative if necessary.	Biweekly
Verify the voltage at the sample holder.	Contact an Abbott Laboratories representative or an authorized service representative if necessary.	Monthly
Verify that all ID plates are fitted to the CAR.	Contact an Abbott Laboratories representative or an authorized service representative if necessary.	Monthly

Figure 21: Slider wear on the front underseal of the CAR



Legend:

1. Slider is OK.
2. Slider is still OK.
3. Slider is worn and permanent magnet is visible.
4. Guiding pin is OK.
5. Guiding pin is still OK.
6. Guiding pin is worn.

Related information...

[CAR maintenance](#), page 197

Replace the front underseal of a CAR, page 303

Input/Output Module maintenance

Before cleaning or maintenance work is performed, the module status must be transitioned to Offline by using the Online/Offline push button.

NOTE: Follow all safety information in this manual. All work not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.

Related information...

Service, maintenance, and diagnostics, page 193

Input/Output Module cleaning, page 202

Input/Output Module maintenance checks, page 207

Input/Output Module cleaning

Some system components may need to be cleaned because of normal use from daily system operations or because of spills.

NOTE: Do not immerse RackPorts with a radio-frequency identification (RFID) tag in water. Do not use a dishwasher to clean RackPorts with an RFID tag.

NOTE: Do not use a dishwasher to clean FlexRacks.

Related information...

Input/Output Module maintenance, page 202

Weekly cleaning procedures, page 202

As-needed cleaning procedures, page 203

Weekly cleaning procedures

Weekly cleaning procedures are required on the Input/Output Module.

Related information...

Input/Output Module cleaning, page 202

Clean the monitor, page 202

Clean the module covers, page 203

Clean the monitor

- | | |
|---------------------------|---|
| Required materials | <ul style="list-style-type: none">• Laboratory-grade surface disinfectant• Lint-free cloth |
|---------------------------|---|

Required module status	Offline
-------------------------------	---------

Perform this weekly procedure to clean the monitor.

1. Ensure that the module covers are closed and locked before the monitor is cleaned.
2. Dampen a lint-free cloth with a surface disinfectant.
3. Carefully wipe the entire surface area of the monitor to remove any dust.

Related information...

[Weekly cleaning procedures](#), page 202

[Open and close the front and rear module covers](#), page 160

Clean the module covers**Required materials**

- Antistatic plastic cleaner
- Lint-free cloth

Required module status

Offline

Perform this weekly procedure to clean the module covers.

1. Ensure that the module covers are closed and locked before the module covers are cleaned.
2. Dampen a lint-free cloth with an antistatic plastic cleaner.
3. Wipe the entire surface area of the module cover.
4. Let the module cover air-dry to allow an antistatic film to form.

Related information...

[Weekly cleaning procedures](#), page 202

[Open and close the front and rear module covers](#), page 160

As-needed cleaning procedures

As-needed cleaning procedures are required on the Input/Output Module.

Related information...

[Input/Output Module cleaning](#), page 202

[Clean the gripper](#), page 204

[Clean the RackPorts](#), page 204

[Clean the FlexRacks](#), page 205

[Clean the drawers](#), page 205

[Clean the racks of the analyzer](#), page 206

[Clean the AccessPoint](#), page 206

[Clean the bar code readers](#), page 206

Clean the gripper

- Required materials**
- Laboratory-grade surface disinfectant
 - Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the gripper.

1. Ensure that all samples are removed from the module.
2. Open the front module cover.
3. Dampen a lint-free cloth with a surface disinfectant.
4. Carefully wipe the gripper to remove any dust.
5. Close the front module cover.

Related information...

[As-needed cleaning procedures](#), page 203

Clean the RackPorts

- Required materials**
- Laboratory-grade surface disinfectant
 - Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the RackPorts.

1. Ensure that all samples are removed from the module.
2. Press the drawer push button to open the drawer.



CAUTION: A minimum clearance between the module and the operator is required to avoid injury when opening the drawer.

3. Dampen a lint-free cloth with a surface disinfectant.
4. Carefully wipe the RackPorts to remove any dust.
5. Press the drawer push button to close the drawer.

Related information...

[As-needed cleaning procedures](#), page 203

Clean the FlexRacks

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth
- Warm water

Required module status

Offline

Perform this as-needed procedure to clean the FlexRacks.

1. Ensure that all samples are removed from the module.
2. Press the drawer push button to open the drawer.



CAUTION: A minimum clearance between the module and the operator is required to avoid injury when opening the drawer.

3. Dampen a lint-free cloth with a surface disinfectant.
4. Carefully wipe each FlexRack to remove any dust.
5. Press the drawer push button to close the drawer.

Related information...

[As-needed cleaning procedures](#), page 203

Clean the drawers

Required materials

- Handheld vacuum (recommended)
- Laboratory-grade surface disinfectant
- Lint-free cloth

Required module status

Offline

Perform this as-needed procedure to clean the drawers.

1. Ensure that all samples are removed from the module.
2. Press the drawer push button to open the drawer.



CAUTION: A minimum clearance between the module and the operator is required to avoid injury when opening the drawer.

3. Vacuum the drawer.
4. Dampen a lint-free cloth with a surface disinfectant.
5. Carefully wipe the drawer to remove any dust.

6. Press the drawer push button to close the drawer.

Related information...

[As-needed cleaning procedures](#), page 203

Clean the racks of the analyzer

Required module status Offline

Perform this as-needed procedure to clean the racks of the analyzer.

1. Ensure that all samples are removed from the module.
2. See the manufacturer specifications for the rack.

Related information...

[As-needed cleaning procedures](#), page 203

Clean the AccessPoint

Required materials

- Laboratory-grade surface disinfectant
- Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the AccessPoint.

1. Ensure that all samples are removed from the module.
2. Open the front module cover.
3. Dampen a lint-free cloth with a surface disinfectant.
4. Carefully wipe the AccessPoint to remove any dust.
5. Close the front module cover.

Related information...

[As-needed cleaning procedures](#), page 203

Clean the bar code readers

Required materials

- Gentle, antistatic glass cleaner
- Lint-free cloth

Required module status Offline

Perform this as-needed procedure to clean the bar code readers.

1. Ensure that all samples are removed from the module.
2. Open the front module cover.
3. Dampen a lint-free cloth with a gentle, antistatic glass cleaner.
4. Carefully wipe each bar code reader to remove any dust.
5. Ensure that the orientation of each bar code reader is not changed so that no errors occur when the bar code is read.
6. Close the front module cover.

Related information...

As-needed cleaning procedures, page 203

Input/Output Module maintenance checks

Dust can cause system errors. The following maintenance checks are required daily on the Input/Output Module to maintain optimal system performance.

Maintenance check	Activity	Interval
Visually inspect the module for dust.	Carefully remove any dust. See the cleaning procedures in this manual.	Daily
Visually inspect the module for damage and errors.	Resolve any errors. See the troubleshooting guidance in this manual.	Daily
Verify that no foreign objects are present on the track.	Remove any foreign objects.	Daily
Verify that the module covers are closed and locked.	Close the module covers if applicable.	Daily

Related information...

Input/Output Module maintenance, page 202

Open and close the front and rear module covers, page 160

NOTES

Introduction

Problems with the GLP systems Track are characterized by symptoms. Troubleshooting tools, references, and suggested techniques help to trace the symptom to one or more root causes.

After determining the root cause, perform the corrective actions to resolve the problem.

Before troubleshooting is performed for system errors, the module must be in the status of Offline.

All work not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.

Related information...

Error messages, page 210

Track Sample Manager errors, page 244

Observed problems, page 289

Miscellaneous corrective action procedures, page 303

Start the GLP systems Track, page 88

Error messages

Message codes and error messages are displayed on the touchscreen user interface when errors occur. Error messages provide information about conditions or errors of system operation. If an error cannot be resolved, contact an Abbott Laboratories representative or an authorized service representative.

NOTE: Corrective actions for error messages may involve hazardous activity. Use caution to minimize operator exposure and to prevent personal injury or system damage.

Related information...

[Troubleshooting](#), page 209

[Communication and software update error messages \(0-10000\)](#), page 210

[Track element error messages \(10001-19999\)](#), page 213

[Module component error messages \(20000-29999\)](#), page 213

[Laboratory automation system error messages](#), page 243

Communication and software update error messages (0-10000)

The communication and software update error message category includes message codes from 0 through 10000.

Related information...

[Error messages](#), page 210

[0](#), page 210

[100](#), page 211

[101](#), page 211

[105](#), page 211

[106](#), page 211

[107](#), page 212

[108](#), page 212

[109](#), page 212

Message code: 0

Solution file missing!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Communication and software update error messages \(0-10000\)](#), page 210

Message code: 100

System error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Communication and software update error messages \(0-10000\)](#), page 210

Message code: 101

Invalid Product Code

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Communication and software update error messages \(0-10000\)](#), page 210

Message code: 105

Out of memory.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Communication and software update error messages \(0-10000\)](#), page 210

Message code: 106

Invalid JSON data structure

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Communication and software update error messages (0-10000), page 210

Message code: 107

Unknown message type received.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Communication and software update error messages (0-10000), page 210

Message code: 108

Json protocol version mismatch

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Communication and software update error messages (0-10000), page 210

Message code: 109

Json cheksum error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Communication and software update error messages \(0-10000\)](#), page 210

Track element error messages (10001-19999)

The track element error message category includes message codes from 10001 through 19999.

Related information...

[Error messages](#), page 210

Module component error messages (20000-29999)

The module component error message category includes message codes from 20000 through 29999.

Related information...

[Error messages](#), page 210

[20105](#), page 214

[20150](#), page 214

[20151](#), page 214

[20200](#), page 215

[20201](#), page 215

[20202](#), page 215

[20203](#), page 216

[20204](#), page 216

[20205](#), page 216

[20206](#), page 217

[20207](#), page 217

[20209](#), page 217

[20210](#), page 217

[20211](#), page 218

[20300](#), page 218

[20900](#), page 218

[20901](#), page 219

[20902](#), page 219

[20906](#), page 219
[20907](#), page 220
[20908](#), page 220
[20909](#), page 220
[20910](#), page 220
[20911](#), page 221
[20912](#), page 221
[Robot PICCOLA error messages \(21000-21060\)](#), page 221
[Display error messages \(23000-23017\)](#), page 230
[23100](#), page 235
[Drawer error messages \(25000-25107\)](#), page 235
[25150](#), page 242
[27000](#), page 242

Message code: 20105

Solution not handled

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Message code: 20150

Requested operation not possible.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Message code: 20151

Invalid robot \$0 target position

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20200

Accesspoint connection problem

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20201

Accesspoint does not respond

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20202

Accesspoint fault

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20203

Accesspoint hardware failure

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20204

The Accesspoint restarted unexpectedly

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20205

Accesspoint initialization timeout

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20206

NFC read problems

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20207

Carriers could not be caught

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20209

Catch position too tight

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20210

The Access Point lost too many Cars

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20211

Access Point did not respond

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20300

Carrier lost during sample transport

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20900

Area Configuration Error!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20901

Teach positions not valid

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20902

Invalid reference positions!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20906

Invalid grip position specified

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20907

Area config contains doubled Area - numbers.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20908

Area config contains overlapping Areas.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20909

Area Type specified in Area is missed.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Module component error messages (20000-29999), page 213

Message code: 20910

Invalid JSON checksum.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Message code: 20911

Inplausible reference position!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Message code: 20912

A component has a wrong fw version.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Robot PICCOLA error messages (21000-21060)

The robot PICCOLA error message category includes message codes from 21000 through 21060.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

[21000](#), page 222

[21001](#), page 222

[21002](#), page 223
[21003](#), page 223
[21004](#), page 223
[21005](#), page 224
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[21019](#), page 228
[21021](#), page 228
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[21034](#), page 228
[21036](#), page 229
[21037](#), page 229
[21041](#), page 229
[21050](#), page 230
[21060](#), page 230

Message code: 21000

Initialization Error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21001

Invalid parameter

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21002

Position error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21003

Piccola ID invalid!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21004

Collision detected

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Robot PICCOLA error messages (21000-21060), page 221

Message code: 21005

Malfunction

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Robot PICCOLA error messages (21000-21060), page 221

Message code: 21006

Device is not responding!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Robot PICCOLA error messages (21000-21060), page 221

Message code: 21008

Missing sensor signal

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21009

Invalid Piccola hardware version!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21010

Unexpected item detected

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21011

Grip sample error!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21012

Sample in gripper!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21013

Unknown Piccola Command

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21014

Illicit program start

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21015

Piccola CAN-ID does not match Script.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Robot PICCOLA error messages (21000-21060), page 221

Message code: 21016

Invalid Piccola Firmware

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Robot PICCOLA error messages (21000-21060), page 221

Message code: 21017

Piccola Chipset invalid!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Robot PICCOLA error messages (21000-21060), page 221

Message code: 21018

Invalid Piccola extension-ID

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21019

End position not detected

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21021

The robot has reported the loss of a sample

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21023

Axis length out of tolerance.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21034

Overtemperature error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21036

Power cut

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21037

Suspicious gripper action

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21041

Sample position check

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21050

Unknown Error (\$1)!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Message code: 21060

Error reading barcode

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Robot PICCOLA error messages \(21000-21060\)](#), page 221

Display error messages (23000-23017)

The display error message category includes message codes from 23000 through 23017.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

[23000](#), page 231

[23001](#), page 231

[23002](#), page 231

[23003](#), page 232

[23004](#), page 232

[23010](#), page 232

[23011](#), page 233

[23012](#), page 233

[23013](#), page 233

[23014](#), page 233

[23015](#), page 234

[23016](#), page 234

[23017](#), page 234

Message code: 23000

Requested dialog file for id \$0 could not be found

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23001

No dialog options found.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23002

Unknown dialog type for dialogId \$0 received by display.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23003

Invalid dialogId \$0 received by display.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23004

Unknown display dialog error for dialogId \$0 occurred

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23010

Area configuration error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23011

Area config error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23012

Area config error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23013

Area config error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23014

Area config error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23015

Area config error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23016

Area config error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23017

Areas are conflicting

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Display error messages \(23000-23017\)](#), page 230

Message code: 23100

Could not send removal message for Drawer \$0, Area \$1 to TSM.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Drawer error messages (25000-25107)

The drawer error message category includes message codes from 25000 through 25107.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

[25000](#), page 236

[25001](#), page 236

[25002](#), page 236

[25003](#), page 237

[25005](#), page 237

[25006](#), page 237

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[25028](#), page 240

[25100](#), page 240

[25101](#), page 240

[25102](#), page 241

[25103](#), page 241

[25104](#), page 241

[25105](#), page 242

Message code: 25000

Error during initialization of Drawer \$0

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25001

Drawer \$0 is not available.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25002

Hardware Error in Drawer \$0

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25003

Drawer \$0 jammed.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25005

Drawer \$0 movement interrupted

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25006

Drawer \$0 forcefully opened.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25009

Drawer \$0 intervention by user.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25010

Execution of Drawer command failed.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25014

Timeout error Drawer \$0

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25015

Drawer \$0 initialisation timeout

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25016

Drawer \$0 home sensor error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25017

Drawer \$0 motor encoder error

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25018

Drawer \$0 full-open position error!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25019

Wrong drawer motor current measurement \$0

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25028

Drawer \$0 incorrect motor wiring!

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25100

An Emergency Modulesensor occurred in Drawer.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25101

Emergency sensor time out

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25102

Emergency unexpected sensor

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25103

Emergency Sensor fault

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25104

RFID Reader problem

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface.

Probable cause	Corrective action
	2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25105

RFID tag reader problem

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Drawer error messages \(25000-25107\)](#), page 235

Message code: 25150

Lock not configured

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Message code: 27000

CAR needs maintenance.

Probable cause	Corrective action
An error has occurred.	1. Correct the error by following the instructions on the touchscreen user interface. 2. If the error cannot be corrected, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Module component error messages \(20000-29999\)](#), page 213

Laboratory automation system error messages

Errors on the laboratory automation system (LAS) can be viewed by the operator on the Track Sample Manager or the module user interface.

If individual sample errors occur, distribution of the other samples on the LAS continues without an interruption in system operation. No direct intervention by the operator is required.

An incorrect sample may be caused by the following situations:

- The bar code is illegible.
- The bar code is incorrect.
- The sample has not received any further routing order.
- The charge status of the CAR has changed during sample transport.

Related information...

[Error messages](#), page 210

Track Sample Manager errors

The Track Sample Manager (TSM) does not generate actual error codes. For issues related to TSM, see the TSM error messages and observed problems in this manual. If the issues related to TSM cannot be resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Troubleshooting](#), page 209

[Track element errors \(700-16000\)](#), page 244

[Controller interfaces sent by module controllers \(28000-30100\)](#), page 247

[TSM generated message error messages \(70000-71999\)](#), page 250

[Warning messages of controller interfaces sent by analyzers \(80000-80999\)](#), page 277

[TWM generated message error messages \(81000-82999\)](#), page 284

[Track Sample Manager observed problems](#), page 296

Track element errors (700-16000)

The track element error message category includes message codes from 700 through 16000.

Related information...

[Track Sample Manager errors](#), page 244

[700](#), page 244

[800](#), page 245

[801](#), page 245

[9000](#), page 245

[9001](#), page 245

[10003](#), page 245

[10050](#), page 246

[15004](#), page 246

[15009](#), page 246

Message code: 700

Too many NFC read timeouts at track element ... in segment ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 800

Too many initialization errors at track element ... in segment

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 801

Positioning times at track element ... in segment ... in critical range too often.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 9000

No heartbeat signal at track element ... in segment controller ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 9001

CAN bus offline. Controller ... cannot communicate via CAN bus.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 10003

CAR at track element ... of segment ... failed to start.

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track.

Probable cause	Corrective action
	2. Toggle the on/off switch at the rear of the CAR and place the CAR back on the track for further processing. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 10050

First CAR at track element ... in segment ... has lost 2% of battery charge.

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track. 2. Toggle the on/off switch at the rear of the CAR and place the CAR back on the track for further processing. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 15004

Too many CARs not stopped at track element ... in segment ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Message code: 15009

Too many CARs not identified at track element ... in segment ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track element errors \(700-16000\)](#), page 244

Controller interfaces sent by module controllers (28000-30100)

The controller interfaces sent by module controllers error message category includes message codes from 28000 through 30100.

Related information...

[Track Sample Manager errors](#), page 244

[28100](#), page 247

[28104](#), page 247

[28105](#), page 248

[28114](#), page 248

[28116](#), page 248

[28117](#), page 249

[28118](#), page 249

[28119](#), page 249

[28120](#), page 249

[28126](#), page 250

[28128](#), page 250

Message code: 28100

Sample ... (barcode ...) expected on CAR ... but not found.

Probable cause	Corrective action
An error has occurred.	1. Search for the sample and locate the last known position to recover the sample. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Controller interfaces sent by module controllers \(28000-30100\)](#), page 247

Message code: 28104

Sample entry: Barcode verification failed for sample ... (barcode ...) at module Barcode read:

Probable cause	Corrective action
An error has occurred.	1. Verify that the placement of the sample bar code is correct and meets requirements. 2. Ensure that the bar code reader is functioning. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Controller interfaces sent by module controllers (28000-30100), page 247

Message code: 28105

Sample exit: Barcode verification failed for sample ... (barcode ...) at module Barcode read:

Probable cause	Corrective action
An error has occurred.	1. Verify that the placement of the sample bar code is correct and meets requirements. 2. Ensure that the bar code reader is functioning. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Controller interfaces sent by module controllers (28000-30100), page 247

Message code: 28114

Analyzer error ...: Analyzer ... reported error for sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	1. Verify that the sample is present. 2. Ensure that the module is functioning. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Controller interfaces sent by module controllers (28000-30100), page 247

Message code: 28116

Failed to create aliquot ... from primary sample ... on CAR Error code:

Probable cause	Corrective action
An error has occurred.	1. Verify that the sample is present. 2. Ensure that the module is functioning. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Controller interfaces sent by module controllers (28000-30100), page 247

Message code: 28117

Failed to aliquot primary sample ... on CAR Error code: ...

Probable cause	Corrective action
An error has occurred.	1. Verify that the sample is present. 2. Ensure that the module is functioning. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...*Controller interfaces sent by module controllers (28000-30100)*, page 247**Message code: 28118**

Failed to create label for aliquot ... from parent sample ... on CAR

Probable cause	Corrective action
An error has occurred.	1. Verify that the sample is present. 2. Ensure that the Aliquot Module and printer are functioning. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...*Controller interfaces sent by module controllers (28000-30100)*, page 247**Message code: 28119**

Failed to create aliquot from parent sample ... on CAR Reason: Tube type ... not supported.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*Controller interfaces sent by module controllers (28000-30100)*, page 247**Message code: 28120**

Insufficient consumable supply

Probable cause	Corrective action
An error has occurred.	1. Observe the inventory of required consumables for modules.

Probable cause	Corrective action
	2. Refill the consumables if necessary.

Related information...

[Controller interfaces sent by module controllers \(28000-30100\)](#), page 247

Message code: 28126

Label layout ... not loaded for aliquot of parent sample ... on CAR

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Controller interfaces sent by module controllers \(28000-30100\)](#), page 247

Message code: 28128

Analyzer ... reported suspicious analysis result for sample ... (...). Scanned barcode Please check.

Probable cause	Corrective action
An error has occurred.	1. Verify the analyzer result of the sample. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Controller interfaces sent by module controllers \(28000-30100\)](#), page 247

TSM generated message error messages (70000-71999)

The TSM generated message error message category includes message codes from 70000 through 71999.

Related information...

[Track Sample Manager errors](#), page 244

[70001](#), page 253

[70002](#), page 253

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[71017](#), page 277

[71018](#), page 277

Message code: 70001

Module ... reported a sample without a barcode. Default barcode ... assigned to sample

Probable cause	Corrective action
An error has occurred.	1. Verify that the position of the sample bar code is correct. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70002

General error area has not been defined.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70003

Unknown controller connected. ID: ..., connected as

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70004

Controller ... connected as ... reported invalid product code. Expected: ...; reported:

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70005

Controller ... reported invalid product codes. Tuple (element ID, expected product code, reported product code): ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70006

Controller ... reported unknown elements. Tuples (element ID and product code): ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70007

Missing elements in init. message of controller ...: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70008

Controller ... connected.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70009

Routing Engine connected.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70011

At least one module controller's ... waste bin is full: ...

Probable cause	Corrective action
An error has occurred.	Empty the waste bin at the appropriate module.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70015

Following mandatory error areas of module controller ... are inactive: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70016

Following optional error areas of module controller ... are inactive: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70017

Error not processed. Reason: Error code ... unknown. ... argument(s): ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70018

CAR ... load change detected. Unloaded at ..., loaded at

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70019

CAR ... load change detected: Loaded at: ..., unloaded at

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70021

Module ... reported invalid area types: Alternative: Assignment area type / AccessPoint type invalid.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70022

Area types of module ... cannot be changed. Reason: Areas not empty. Tuples (area name, old area type and new area type): ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70023

Initialization of controller ... has failed with the following errors: ...

Probable cause	Corrective action
An error has occurred.	1. Reinitialize the module. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70026

Reported barcode length ... is outside of valid interval [..., ...].

Probable cause	Corrective action
An error has occurred.	1. Verify that the sample bar code meets requirements. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70029

Failed to target error area ... for ... samples with error code Timeout of ... minutes exceeded. If no samples are on the track, search the target area and remove the samples in the TSM.

Probable cause	Corrective action
An error has occurred.	The error area at the module is empty. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70031

Failed to parse a message from controller ...; see log for more details.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70032

Areas ... added to module

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70033

Areas ... removed from module

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70034

Controller ... reported ID change to ... within the same connection. This is not yet supported.

Probable cause	Corrective action
An error has occurred.	1. Restart the module. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70035

The area type of module ... cannot be changed. Reason: The following modules are still connected: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70036

Areas ... of module ... cannot be removed. Reason: Areas still contain samples.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70037

CAR ... has reported the wrong loading state ... time(s) within ... hour(s).

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track for maintenance. 2. Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70038

A switch has misrouted CAR ... to the maintenance lane.

Probable cause	Corrective action
An error has occurred.	1. Remove the CAR from the maintenance lane and place it back on the track for further processing. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70039

CAR ... requires maintenance and is being routed to maintenance lane

Probable cause	Corrective action
An error has occurred.	1. Remove the CAR from the maintenance lane. 2. Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70040

Failed to send message to RE. Reason: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70041

IP address for RE hostname ... could not be resolved.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70042

Controller ... (name ...) renamed to

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70043

Area ... in module ... is full.

Probable cause	Corrective action
An error has occurred.	The output area or error area at the module is empty.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70044

Error area ... in module ... at zero capacity.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70045

Area ... in module ... has reached the fill-level threshold

Probable cause	Corrective action
An error has occurred.	An area at the module is empty.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70047

CAR ... load detected: Loaded at ..., unloaded at

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70048

Sample ... has been loaded on CAR ..., which has supposedly already been loaded with sample

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70050

The following error areas cannot be found in any module, but have been configured as the destination for samples in the TSM: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70051

The following error areas are inactive, but have been configured as the destination for samples in the TSM: ...

Probable cause	Corrective action
An error has occurred.	1. Ensure that the module sample drawer is closed. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70052

All modules with error area(s) ... offline.

Probable cause	Corrective action
An error has occurred.	1. Ensure that the module is online. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70053

No capacity available for error areas

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70054

Controller ... reported status change from status ... to status

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70062

Module controller ... did not report secondary node IDs for the following areas: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70063

Module controller ... reported invalid secondary node IDs for the following areas:

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70074

TSM cannot process the error from the Routing Engine due to an invalid error code. Invalid error code of argument(s): ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70075

Controller ... reported an invalid error code ... with ... arguments: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70076

Invalid product code of track element ... in segment Expected: ...; reported: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70077

Consumables level ... in module controller ... has reached a critical fill level: ...%

Probable cause	Corrective action
An error has occurred.	1. Observe the inventory of required consumables for modules. 2. Refill the consumables if necessary.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70078

Consumables ... in module controller ... are empty.

Probable cause	Corrective action
An error has occurred.	Refill the required consumables for modules.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70079

CAR with aliquot sample ... (barcode ...) started unexpectedly at Aliquot Module

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70080

Area ... cannot be created for module Reason: Area exists at another module with different sample requirements.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70086

Area types of module ... cannot be changed: Areas are still configured as target for error codes. Tuples (area name, old area type and new area type): ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70087

The type of current or future target area ... of sample ... (barcode ...) changed at module

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70088

Module ... does not report the following mandatory areas:

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70089

Module ... reported invalid area types. Tuples (area, expected type, reported type):

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70090

Aliquot Module ... is set to inactive. Reason: Missing tube type mapping of SCREW and PUSH to active tube types.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70091

Module ... reported invalid diameter ranges for an area. They must be descending and non-overlapping. The module reported the following ranges: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70094

Possible sample mix-up detected: Module ... reported detected barcode ... for sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	1. Locate both samples. 2. Observe the sample results in the middleware to ensure that no sample exchanges or mix-ups occurred. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70096

Analysis for sample ... (barcode ...) contains warning code ..., but the RE could not be informed, because it does not yet support sample warning messages.

Probable cause	Corrective action
An error has occurred.	Informational message. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70097

The analysis for sample ... (barcode ...) contains the invalid warning code

Probable cause	Corrective action
An error has occurred.	Informational message. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70098

Data recovery failed: Invalid message content or message processing failed. Technical details: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70099

Data recovery failed: Module reported an invalid total sample number.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70100

Failed to evaluate a processing result from ... for sample ... (barcode ...). Possible reasons: Results message received too late or did not contain required information.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70101

Module ... does not belong to the same discipline as the other modules of the following areas: For output, archive, centrifuge and analyzer areas, all modules of that area must be assigned to the same discipline.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70102

Area ... at module ... cannot be approached. Reason: Cap status ... not supported. Supported: ...

Probable cause	Corrective action
An error has occurred.	1. Locate the sample and observe the cap status. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70103

Target ... cannot be approached. Reason: Sample tube type is unknown. It is required at module

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70104

Target ... cannot be approached. Reason: No bottle type defined for module Bottle type for the combination tube type ... and product code ... not found.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70105

Aliquot #... cannot be created. Reason: Tube type not found.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70107

No Aliquot Module provides required supply area for requested aliquot tube type: ...

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70108

Target step ... for sample ... is executable. Reason: No module supports the tube diameter.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70109

Failed to assign discipline ... for sample ... (barcode ...). Reason: Discipline not defined.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 70112

The maximum processing time of sample ... was exceeded, the last known position was

Probable cause	Corrective action
An error has occurred.	1. Locate the sample and place it back on the track for further processing. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70113

Target step ... to area ... failed; Aliquot data not found.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70114

CAR not started as instructed

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track. 2. Toggle the on/off switch at the rear of the CAR and place the CAR back on the track for further processing. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70115

No CAR message

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70116

No/invalid CAR weight message

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*TSM generated message error messages (70000-71999)*, page 250**Message code: 70117**

CAR at unexpected position

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track. 2. Toggle the on/off switch at the rear of the CAR and place the CAR back on the track for further processing. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...*TSM generated message error messages (70000-71999)*, page 250**Message code: 70118**

CAR not stopped as instructed

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*TSM generated message error messages (70000-71999)*, page 250**Message code: 70119**

CAR not deviated as instructed

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*TSM generated message error messages (70000-71999)*, page 250

Message code: 70120

Tube type ... of sample ... (barcode ...) not supported at module

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70121

CAR not deviated as offered

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70122

User requests CAR ... to maintenance lane

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track. 2. Toggle the on/off switch at the rear of the CAR and place the CAR back on the track for further processing. 3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70123

No translation required

Probable cause	Corrective action
An error has occurred.	1. Locate the CAR and remove it from the track. 2. Toggle the on/off switch at the rear of the CAR and place the CAR back on the track for further processing.

Probable cause	Corrective action
	3. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70124

No translation required

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70125

No translation required

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 70126

User ... marked sample as removed.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71000

All checks for uploaded track passed successfully.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71001

Uploaded file is not a valid track layout file or it contains invalid entries / values. Technical details: ...

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71002

Operation mode "Disconnected" required for track layout changes.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71003

Layout name changed from ... to

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71004

The following controller identifiers are not unique: ...

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71005

Track element IDs ... in segment ... are not unique.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71006

Module ... removed.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...[TSM generated message error messages \(70000-71999\)](#), page 250**Message code: 71007**

Module ... removed. Module still contains samples.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...[TSM generated message error messages \(70000-71999\)](#), page 250**Message code: 71008**

Sensors in front of track element ... in segment ... not close enough. Track element will not be able to process all instructions properly.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...[TSM generated message error messages \(70000-71999\)](#), page 250**Message code: 71009**

Version downgrade from ... to

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...[TSM generated message error messages \(70000-71999\)](#), page 250**Message code: 71010**

Segment ... removed.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71011

Product codes not supported:

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71012

Missing switches in segment ... before waiting queues:

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71013

Track must contain at least one maintenance lane.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71014

Track must contain at least one charging lane.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71015

No TSM license installed. Only "Test" operation mode is allowed.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

TSM generated message error messages (70000-71999), page 250

Message code: 71016

License supports ... of ... track segments only. Only "Test" operation mode is allowed.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71017

Product code change for module

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

Message code: 71018

Product code change for module Module still contains samples.

Probable cause	Corrective action
An error has occurred.	Informational message.

Related information...

[TSM generated message error messages \(70000-71999\)](#), page 250

**Warning messages of controller interfaces sent by analyzers
(80000-80999)**

The warning messages of controller interfaces sent by analyzers error message category includes message codes from 80000 through 80999.

Related information...

[Track Sample Manager errors](#), page 244

[80000](#), page 278

[80001](#), page 278

[80002](#), page 279

[80003](#), page 279

[80004](#), page 279

[80005](#), page 279

[80006](#), page 280

[80007](#), page 280

[81005](#), page 280
[81006](#), page 281
[81010](#), page 281
[81011](#), page 281
[81012](#), page 281
[81013](#), page 281
[81014](#), page 282
[81015](#), page 282
[81016](#), page 282
[81017](#), page 282
[81019](#), page 283
[81020](#), page 283
[81022](#), page 283
[81023](#), page 283
[81027](#), page 284
[81028](#), page 284
[81029](#), page 284

Message code: 80000

Analysis ended with warning: Unspecified error condition / generic error. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Warning messages of controller interfaces sent by analyzers \(80000-80999\)](#), page 277

Message code: 80001

Analysis ended with warning: Not enough liquid Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Warning messages of controller interfaces sent by analyzers \(80000-80999\)](#), page 277

Message code: 80002

Analysis ended with warning: Clot detected. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 80003

Analysis ended with warning: Consumable supply error. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 80004

Analysis ended with warning: Reagent error. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 80005

Analysis ended with warning: Sampling failed. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information.

Probable cause	Corrective action
	2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 80006

Analysis ended with warning: No order. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the middleware and analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 80007

Analysis ended with warning: Already registered. Internal error code: ...

Probable cause	Corrective action
An error has occurred.	1. Observe the analyzer for more information. 2. If the error is not resolved, contact an Abbott Laboratories representative or an authorized service representative.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81005

Sample ... (barcode ...) removed from CAR ... at track element Loading status will be checked at error area.

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81006

TSM cannot find sample ... (barcode ...) in module

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81010

Aliquot ... reported error for parent sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81011

Target plan for sample ... (barcode ...) contains unknown areas: ...

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81012

Target plan for unknown sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81013

No progress for sample ... (barcode ...) for ... minutes.

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81014

Barcode verification failed for sample ... (barcode ...). Barcode read: ...

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81015

Route update ... for sample ... (barcode ...) ignored. Reason: Unsuitable sample status.

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81016

Missing target plan from RE for sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81017

Robot of ... has failed to pick up sample ... (barcode ...). It was manually removed from the module.

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81019

Analyzer ... failed to analyze sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81020

Aliquot preconditions (cap status, Aliquot Module/aliquot tube types, bottle type) for the parent sample ... (barcode ...) not met.

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81022

Unknown position of sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81023

Sample ... (barcode ...) cannot be analyzed. Reason: Preconditions not met (cap, bottle type).

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

Warning messages of controller interfaces sent by analyzers (80000-80999), page 277

Message code: 81027

Target plan update failed. Reason: Update would cause a partial abortion of processing group First step of target plan update belongs to processing group

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

[Warning messages of controller interfaces sent by analyzers \(80000-80999\)](#), page 277

Message code: 81028

Failed to assign discipline ... to sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	An informational message was sent to the Track Workflow Manager.

Related information...

[Warning messages of controller interfaces sent by analyzers \(80000-80999\)](#), page 277

Message code: 81029

Analyzer ... reported suspicious analysis result for sample ... (...). Scanned barcode Please check.

Probable cause	Corrective action
An error has occurred.	The error was caused by a module error. An informational message was sent to the Track Workflow Manager.

Related information...

[Warning messages of controller interfaces sent by analyzers \(80000-80999\)](#), page 277

TWM generated message error messages (81000-82999)

The TWM generated message error message category includes message codes from 81000 through 82999.

Related information...

[Track Sample Manager errors](#), page 244

[82002](#), page 285

[82002](#), page 285

[82003](#), page 285

[82003](#), page 285

[82005](#), page 286

[82005](#), page 286

[82006](#), page 286

[82006](#), page 286

[82007](#), page 287

[82007](#), page 287

[82008](#), page 287

[82008](#), page 287

[82009](#), page 288

[82009](#), page 288

Message code: 82002

Target plan creation failed for sample ... (barcode ...). Reason: Missing information from LIS.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82002

The Track Workflow Manager has insufficient information from HOST for sample {sampleNumber} with barcode "{sampleBarcode}".

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82003

Target plan creation failed. Reason: Duplicate sample barcode

Probable cause	Corrective action
An error has occurred.	Locate and remove the sample that has a duplicate barcode.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82003

The Track Workflow Manager already has a sample with the barcode "{sampleBarcode}".

Probable cause	Corrective action
An error has occurred.	Locate and remove the sample that has a duplicate bar code.

Related information...

TWM generated message error messages (81000-82999), page 284

Message code: 82005

The routing engine is unable to determine the next route step for sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TWM generated message error messages (81000-82999), page 284

Message code: 82005

The Track Workflow Manager is unable to determine the next route step for sample {sampleNumber} with barcode "{sampleBarcode}".

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TWM generated message error messages (81000-82999), page 284

Message code: 82006

The routing engine is unable to determine the fluid type of sample ... (barcode ...).

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TWM generated message error messages (81000-82999), page 284

Message code: 82006

The Track Workflow Manager is unable to determine the fluid type of sample {sampleNumber} with barcode "{sampleBarcode}".

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82007

The routing engine was unable to identify the barcode ... of sample ... for quality control purposes.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82007

The Track Workflow Manager failed to create a route plan for QC sample {sampleNumber} with barcode "{sampleBarcode}" due to unknown barcode.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82008

Sample ... (barcode ...) has not been properly announced with a sample-NEW message to the routing engine.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82008

Route creation for sample {sampleNumber} with barcode "{sampleBarcode}" failed because sample was not reported with sample-NEW message.

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[TWM generated message error messages \(81000-82999\)](#), page 284

Message code: 82009

The routing engine is unable to complete the order of sample ... and barcode

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TWM generated message error messages (81000-82999), page 284

Message code: 82009

The Track Workflow Manager is unable to complete the order of sample {sampleNumber} and barcode "{sampleBarcode}".

Probable cause	Corrective action
An error has occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

TWM generated message error messages (81000-82999), page 284

Observed problems

Observed problems provide information about problems that may occur on the system and provide corrective actions that help to resolve the problems.

If the corrective actions for an observed problem do not resolve the problem, contact the local representative or find country-specific contact information at corelaboratory.abbott.



CAUTION: Risk of infection due to skin contact. The operator may be exposed to serious injury, including death or infections, due to skin contact with infected sample matter. Wear personal protective equipment during operation.

Related information...

[Troubleshooting](#), page 209

[CAR observed problems](#), page 289

[Track observed problems](#), page 294

[Track Sample Manager observed problems](#), page 296

[Input/Output Module observed problems](#), page 299

CAR observed problems

CAR observed problems include problems that occur with the CARs.

All work not included in this manual may only be performed by an Abbott Laboratories representative or an authorized service representative.

Related information...

[Observed problems](#), page 289

[New CAR does not move](#), page 290

[Sample tube is slanted in the sample holder](#), page 290

[CAR position is skewed on the track](#), page 290

[CAR is caught on the charge lane charging pin or lane element transition](#), page 291

[CAR movement is jerky or noisy](#), page 291

[Rechargeable lithium battery is not charged](#), page 291

[Rechargeable lithium battery is overheating](#), page 291

[CAR lurches from side to side and is not stopped at the AccessPoint](#), page 292

[CAR LEDs blink in an uncontrolled manner \(such as red and yellow\) while moving](#), page 292

[CAR always moves at a constant speed](#), page 292

[CAR does not exit the charge lane](#), page 293

[CARs come into contact with the charge lane](#), page 293

[CARs do not move](#), page 293

[CARs are present in the charge lane but cannot move](#), page 294

CARs move too slowly, page 294

CAR does not maintain distance with the CAR ahead of it or pushes it forward, page 294

New CAR does not move

Probable cause	Corrective action
The CAR is not registered in the control system.	• Switch on the CAR. • Inspect the track for obstructions. • Contact an Abbott Laboratories representative or an authorized service representative if necessary.
The lithium battery charge level of the CAR is low.	• Switch the CAR on and off. • Inspect the track for obstructions. • Remove the CAR from the track. • Contact an Abbott Laboratories representative or an authorized service representative if necessary.
An obstruction is present on the driving lane.	• Switch the CAR on and off. • Inspect the track for obstructions. • Remove the CAR from the track. • Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

CAR observed problems, page 289

Sample tube is slanted in the sample holder

Probable cause	Corrective action
One of the sample holder clips is defective or the sample tube falls from the CAR.	• Contact an Abbott Laboratories representative or an authorized service representative to replace the sample holder. • Remove the sample tube from the Track Sample Manager. • Reload the sample tube in the input module.

Related information...

CAR observed problems, page 289

CAR position is skewed on the track

Probable cause	Corrective action
The CAR is worn on one side.	Replace the front underseal. Perform <i>Replace the front underseal of a CAR</i> , page 303.

Related information...

CAR observed problems, page 289

CAR is caught on the charge lane charging pin or lane element transition

Probable cause	Corrective action
The distance between the CAR underseal and the lane elements is insufficient.	• Inspect the bottom of the CAR for dust. If replacement of the front underseal is necessary, perform Replace the front underseal of a CAR, page 303. • Inspect the lane elements. If replacement of any lane elements is necessary, contact an Abbott Laboratories representative or an authorized service representative to replace the appropriate lane elements.

Related information...

[CAR observed problems](#), page 289

CAR movement is jerky or noisy

Probable cause	Corrective action
The CAR is dirty.	• Clean the CAR. Perform one or more of the following procedures: – Clean the sensors, page 197. – Clean the housing, page 198. – Clean the charging contacts, page 198. – Clean the sample holder, page 199. – Clean the drive wheel and the wheel arch, page 199. • Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[CAR observed problems](#), page 289

Rechargeable lithium battery is not charged

Probable cause	Corrective action
The charging contacts on the rechargeable lithium battery are dirty.	• Clean the charging contacts on the rechargeable lithium battery. • Contact an Abbott Laboratories representative or an authorized service representative to replace the rechargeable lithium battery.

Related information...

[CAR observed problems](#), page 289

Rechargeable lithium battery is overheating

Probable cause	Corrective action
The rechargeable lithium battery is defective.	1. Remove the CAR from the track.  CAUTION: Wear personal protective equipment while operating the laboratory automation system. 2. Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[CAR observed problems](#), page 289

CAR lurches from side to side and is not stopped at the AccessPoint

Probable cause	Corrective action
• The sliders are no longer present on the CAR. • The guiding pin has broken off the CAR.	Replace the front underseal. Perform Replace the front underseal of a CAR , page 303.

Related information...

[CAR observed problems](#), page 289

CAR LEDs blink in an uncontrolled manner (such as red and yellow) while moving

Probable cause	Corrective action
The CAR requires a restart.	1. Switch off the CAR, and then switch it on again. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[CAR observed problems](#), page 289

CAR always moves at a constant speed

Probable cause	Corrective action
The CAR does not detect any commands from the active lane elements.	• Clean the CAR. Perform one or more of the following procedures: – Clean the sensors, page 197. – Clean the housing, page 198. – Clean the charging contacts, page 198. – Clean the sample holder, page 199. – Clean the drive wheel and the wheel arch, page 199. • If necessary, replace the CAR. Perform one of the following procedures: – Replace a CAR with a sample, page 304. – Replace a CAR without a sample, page 305.

Probable cause	Corrective action
	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*CAR observed problems*, page 289**CAR does not exit the charge lane**

Probable cause	Corrective action
The CAR does not charge. The charge lane may be defective.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*CAR observed problems*, page 289**CARs come into contact with the charge lane**

Probable cause	Corrective action
The sliders on the CAR are worn.	Replace the front underseal. Perform <i>Replace the front underseal of a CAR</i> , page 303.

Related information...*CAR observed problems*, page 289**CARs do not move**

Probable cause	Corrective action
The CAR requires a restart.	Switch off the CAR, and then switch it on again.
The CAR is defective.	If necessary, replace the CAR. Perform one of the following procedures: <i>Replace a CAR with a sample</i>, page 304. <i>Replace a CAR without a sample</i>, page 305.
The rechargeable lithium battery is almost empty.	Charge the CAR.
Debris is present on the track.	Remove any debris from the track.
The guide pin is broken.	Replace the front underseal. Perform <i>Replace the front underseal of a CAR</i> , page 303.
A track element is disconnected.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...*CAR observed problems*, page 289

CARs are present in the charge lane but cannot move

Probable cause	Corrective action
The charge lane charging pins do not release the CAR.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[CAR observed problems](#), page 289

CARs move too slowly

Probable cause	Corrective action
- The CAR requires a restart. - The CAR is defective. - The rechargeable lithium battery is almost empty.	- Switch off the CAR, and then switch it on again. - Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[CAR observed problems](#), page 289

CAR does not maintain distance with the CAR ahead of it or pushes it forward

Probable cause	Corrective action
The collision sensor is defective or malfunctioning.	- Switch off the CAR, and then switch it on again. NOTE: Do not affix extra labels to CARs as the labels may adversely affect the collision sensors on the CARs. - Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[CAR observed problems](#), page 289

Track observed problems

Track observed problems include problems that occur with the track.

All work not included in this manual may be performed only by an Abbott Laboratories representative or an authorized service representative.

Related information...

[Observed problems](#), page 289

[Sample is missing](#), page 295

[Operator manually loads or unloads CAR](#), page 295

Sample in CAR was exchanged, page 295

Errors at cross switch controllers, page 295

Errors at AccessPoint, page 296

Errors at charge lane, page 296

Sample is missing

Probable cause	Corrective action
A sample is missing.	Use the Track Sample Manager to display the last action of the missing sample.

Related information...

Track observed problems, page 294

Operator manually loads or unloads CAR

Probable cause	Corrective action
The operator removes a sample from a CAR manually or loads a CAR manually.  CAUTION: Do not remove samples from a CAR or the track. All samples removed from the track must be placed back in the Input/Output Module for appropriate routing. When samples are removed from the track, they must be deleted from the Track Sample Manager before they are reloaded.	Observe that the CAR moves to the output module for inspection purposes. Confirm that checks are performed on the CAR loading status or on the sample.

Related information...

Track observed problems, page 294

Sample in CAR was exchanged

Probable cause	Corrective action
The sample in the CAR was exchanged.	Verify if there are differences in assignment between the CAR ID and the sample. If differences in assignment are present, the sample is transported to the error area of the output module.

Related information...

Track observed problems, page 294

Errors at cross switch controllers

Probable cause	Corrective action
Errors occurred at the cross switch controllers.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track observed problems](#), page 294

Errors at AccessPoint

Probable cause	Corrective action
Errors occurred at the AccessPoint.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track observed problems](#), page 294

Errors at charge lane

Probable cause	Corrective action
Charge lane errors occurred.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Track observed problems](#), page 294

Track Sample Manager observed problems

Track Sample Manager (TSM) observed problems include problems that occur with TSM.

Related information...

[Observed problems](#), page 289

[Waiting queues are not full; waiting queues are empty but CARs are required](#), page 296

[CARs do not reach a specific target; not all CARs reach targets](#), page 297

[CARs are circling the track](#), page 297

[Traffic jam occurs on the track](#), page 298

[Too many samples are present in the error area of the output module](#), page 298

[Track Sample Manager errors](#), page 244

Waiting queues are not full; waiting queues are empty but CARs are required

Probable cause	Corrective action
Not enough CARs are available on the track.	Slow down the rate at which the input module is filled with samples. See CARs tab element descriptions (TSM) , page 130.
Too many CARs have a low lithium battery charge level.	1. Inspect the charge lanes. 2. Verify the lithium battery charge level of the CARs. See CARs tab element descriptions (TSM), page 130.

Probable cause	Corrective action
The switch at the entry point of the queue is defective.	1. Visually inspect the queue for dust. 2. Verify that the cross switch is working correctly. 3. Contact an Abbott Laboratories representative or an authorized service representative if necessary. See Samples tab (TSM), page 118.
A CAR was manually removed from the queue.	1. Do not remove a CAR from the queue. 2. Verify that the cross switch is working correctly. See List requested tab (Samples) element descriptions (TSM), page 129.

Related information...

[Track Sample Manager observed problems](#), page 296

CARs do not reach a specific target; not all CARs reach targets

Probable cause	Corrective action
The switch is not working correctly or an error occurred on the track.	1. Visually inspect the track for dust. 2. Verify that the cross switch is working correctly. 3. Contact an Abbott Laboratories representative or an authorized service representative if necessary. See Samples tab (TSM), page 118.

Related information...

[Track Sample Manager observed problems](#), page 296

CARs are circling the track

Probable cause	Corrective action
The Track Sample Manager (TSM) is switched off.	1. Verify the connection between TSM and the Track Workflow Manager (TWM). Perform View the connections to TWM on TSM, page 117. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.
The sample target is not available.	1. Verify the availability and online status of the areas and modules. See Controller tab element descriptions (TSM), page 103. 2. Transition the module status to Online.

Probable cause	Corrective action
The target area of the output module is full.	1. Verify the fill levels of the areas on TSM. See Controller tab element descriptions (TSM), page 103. 2. Ensure that the output drawers are emptied.

Related information...

[Track Sample Manager observed problems](#), page 296

Traffic jam occurs on the track

Probable cause	Corrective action
The Track Sample Manager cannot route a CAR to a charge lane because the lithium battery charge level of the CAR is below the limit.	• Unload the CAR. • Manually place the CAR on a charge lane. See CARs tab element descriptions (TSM), page 130.
A collision occurred between two CARs at a switch.	1. Inspect the CARs for damage. 2. Repair or replace damaged CARs. 3. Manually move undamaged CARs. 4. Contact an Abbott Laboratories representative or an authorized service representative if necessary.
Too many CARs are present on the track.	Reduce the number of samples in the system.
The switch performance is insufficient.	1. Visually inspect the switch for dust. 2. Verify that the cross switch is working correctly. See Samples tab (TSM), page 118. 3. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[Track Sample Manager observed problems](#), page 296

Too many samples are present in the error area of the output module

Probable cause	Corrective action
Errors occurred on the modules and caused the samples to be routed to the error area.	Verify the status of the module or analyzer on which the samples are to be processed. See Samples tab (TSM) , page 118.
An error occurred when the bar code was read.	1. Ensure that the correct bar code labels have been correctly affixed to the sample tubes. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.
A sample was not processed within the time limit.	Determine the reason for the time-out.

Probable cause	Corrective action
An error occurred with the grippers.	1. Visually inspect the grippers for dust. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

Track Sample Manager observed problems, page 296

Input/Output Module observed problems

Input/Output Module observed problems include problems that occur with the Input/Output Module.

Dust can cause system errors. Before troubleshooting is performed for system errors, the module status must be transitioned to Offline by using the Online/Offline push button or the **Online/Offline** button.

All work not included in this manual may be performed only by an Abbott Laboratories representative or an authorized service representative.

NOTE: If errors occur, observe the instructions on the monitor.

Related information...

Observed problems, page 289

CAR does not move to the module, page 299

Error message is displayed, page 300

CAR moves through the AccessPoint without stopping, page 300

CAR stops at the AccessPoint and then will not move, page 300

Robot does not work, page 300

Gripper loses its grip on the sample tube, page 301

Sample tube is jammed in the gripper, page 301

Sample tube is tilted in the FlexRack, page 301

Bar code is not read, page 302

CAR does not move to the module

Probable cause	Corrective action
An error or defect occurred that involves the switch.	Contact an Abbott Laboratories representative or an authorized service representative.
A module error occurred.	Correct errors on the module.
An error occurred with the Track Sample Manager (TSM) or Routing Engine (RE).	1. Verify the TSM or RE connection. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[Input/Output Module observed problems](#), page 299

Error message is displayed

Probable cause	Corrective action
An error has been detected.	1. Follow the error dialog on the touchscreen user interface. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[Input/Output Module observed problems](#), page 299

CAR moves through the AccessPoint without stopping

Probable cause	Corrective action
An error occurred at the AccessPoint.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Input/Output Module observed problems](#), page 299

CAR stops at the AccessPoint and then will not move

Probable cause	Corrective action
An error occurred at the AccessPoint.	Contact an Abbott Laboratories representative or an authorized service representative.

Related information...

[Input/Output Module observed problems](#), page 299

Robot does not work

Probable cause	Corrective action
A robot error or a mechanical problem occurred.	1. Follow the error dialog on the touchscreen user interface. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[Input/Output Module observed problems](#), page 299

Gripper loses its grip on the sample tube

Probable cause	Corrective action
The gripper fingers are defective.	• Replace the gripper fingers, page 306. • Manually insert the sample tube for analysis in the sample input drawer. • Separately appraise and specifically assess the test result of the dropped sample tube.

Related information...

[Input/Output Module observed problems](#), page 299

Sample tube is jammed in the gripper

Probable cause	Corrective action
The gripper fingers are defective or dirty.	1. If a sample tube is located in a robot gripper, secure the sample tube with one hand and press the tube release button with the other hand. See Input/Output Module design and function, page 46. 2. Inspect the gripper fingers for damage and dirt. 3. If necessary, perform Clean the gripper, page 204. 4. If necessary, perform Replace the gripper fingers, page 306. 5. Follow the error dialog on the touchscreen user interface. 6. Contact an Abbott Laboratories representative or an authorized service representative if necessary.

Related information...

[Input/Output Module observed problems](#), page 299

Sample tube is tilted in the FlexRack

Probable cause	Corrective action
The FlexRack is damaged.	Replace the FlexRack. Perform Replace a FlexRack , page 308.

Related information...

[Input/Output Module observed problems](#), page 299

Bar code is not read

Probable cause	Corrective action
The bar code reader is dirty or defective.	1. Clean the bar code reader. Perform <i>Clean the bar code readers</i>, page 206. 2. Contact an Abbott Laboratories representative or an authorized service representative if necessary.
The bar code is illegible.	1. Relabel the sample tube. 2. Reintroduce the sample tube to the module.

Related information...

Input/Output Module observed problems, page 299

Miscellaneous corrective action procedures

Corrective action procedures are a series of steps that are recommended to resolve a probable cause associated with a message code or an observed problem. These procedures are common to more than one message code or observed problem.

Related information...

Troubleshooting, page 209

CAR corrective action procedures, page 303

Input/Output Module corrective action procedures, page 305

CAR corrective action procedures

The operator may need to perform corrective action procedures for CARs when message codes and observed problems associated with the CARs are diagnosed.

Related information...

Miscellaneous corrective action procedures, page 303

CAR replacement and disposal, page 303

Replace the front underseal of a CAR, page 303

Replace a CAR with a sample, page 304

Replace a CAR without a sample, page 305

CAR replacement and disposal

Defective CARs are located either in the maintenance lane or charge lane or on the track. If a CAR is no longer functional or if it has a deep-discharged or hot lithium battery, the CAR must be replaced.

CARs may only be disposed of by an Abbott Laboratories representative or an authorized service representative.



CAUTION: Risk of environmental damage. Environmental damage may occur due to incorrect disposal of the CARs. Dispose of the CARs in accordance with local, state, and national regulations. Do not dispose of the CARs in domestic waste. Follow the disposal instructions.

Related information...

CAR corrective action procedures, page 303

Replace the front underseal of a CAR

Prerequisite

- The CAR is switched off.

- The sample has been removed and reinserted into the input module.

Perform this procedure to replace the front underseal of a CAR.

The front underseal on the CAR requires replacement if the permanent magnet on the bottom side is visible, the position of the CAR is skewed, or the guiding pin is worn.

1. Push the front underseal [1] forward and remove it.



2. Insert the new front underseal [1] and push it back until it engages.
3. Switch on the CAR and place it back on the track.

Related information...

[CAR corrective action procedures](#), page 303

[CAR maintenance checks](#), page 200

Replace a CAR with a sample

Prerequisite

- A defective CAR and its sample are on the track.
- A new and registered CAR is available.

Perform this procedure to replace a CAR that carries a sample.

NOTE: Send the defective CAR to an Abbott Laboratories representative or an authorized service representative for repair and inspection.

1. Remove the sample from the Track Sample Manager (TSM).
2. Remove the defective CAR from the track.
3. Switch off the defective CAR by using the on/off switch.
4. Switch on the new CAR by using the on/off switch.
5. Place the new CAR on the track.

TSM independently guides the CAR to a charge lane.

Related information...

[CAR corrective action procedures](#), page 303

[Remove a sample \(TSM\)](#), page 126

Replace a CAR without a sample**Prerequisite**

- A defective CAR is in the maintenance lane, in the charge lane, or on the track.
- A new and registered CAR is available.

Perform this procedure to replace a CAR that does not carry a sample.

NOTE: Send the defective CAR to an Abbott Laboratories representative or an authorized service representative for repair and inspection.

1. Remove the defective CAR from the track.
2. Switch off the defective CAR by using the on/off switch.
3. Switch on the new CAR by using the on/off switch.
4. Place the new CAR in the charge lane.

The light-emitting diode is illuminated steady yellow or blinking green.

Related information...

[CAR corrective action procedures](#), page 303

Input/Output Module corrective action procedures

The operator may need to perform corrective action procedures for the Input/Output Module when message codes and observed problems associated with the module are diagnosed.

Related information...

[Miscellaneous corrective action procedures](#), page 303

[Replace the gripper fingers](#), page 306

[Replace a FlexRack](#), page 308

Replace the gripper fingers

Prerequisite

- The robot is in an accessible position.
- All samples must be removed from the module to avoid sample contamination.

Required materials

Tx6 Torx screwdriver

Required module status

Off

Perform this procedure to replace the gripper fingers on the module.

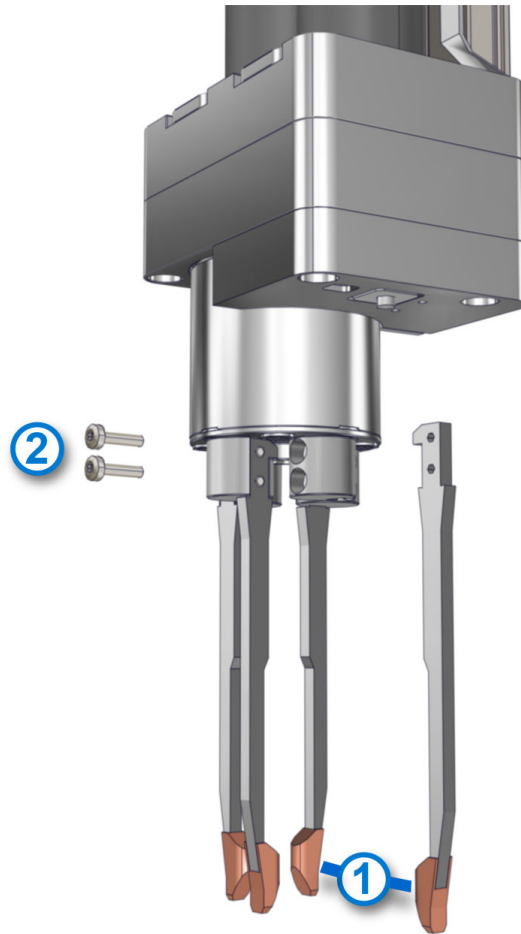


CAUTION: Overhead obstruction. Operators may hit their heads on open module covers.

- Be aware that injury or bodily harm can occur when module covers are opened and closed.
- Protect the head when working on modules with open module covers.
- Frequently observe the functionality of the opening mechanism. Regular visual inspection of the covers is necessary during maintenance to ensure proper operation.

NOTE: Inspect all four gripper fingers and replace any defective gripper fingers together with their screws. The gripper fingers can only be used in one position by design. The procedure for replacing the gripper fingers is identical for all four fingers.

1. At the front lower end of the module cover, insert the unlock key into the unlock mechanism.
2. Turn the unlock key counterclockwise a quarter turn.
3. Lift open the cover.
4. Loosen both screws [2] on the gripper finger [1] with the Torx screwdriver.



5. Remove the screws [2].
6. Remove the gripper finger [1] from the bracket.
7. Insert a new gripper finger [1] into the bracket so that the gripper finger tooth points inward.
8. Insert new screws [2] into the new gripper finger [1].
9. Tighten the screws [2] with the Torx screwdriver.
10. To close the cover, carefully pull down the cover.
11. Press lightly on the cover until it is secured.
12. Remove the unlock key from the unlock mechanism.
13. Power on the module.

Related information...

Input/Output Module corrective action procedures, page 305

Open and close the front and rear module covers, page 160

Power on the module, page 163

Replace a FlexRack

Required module status Online

Perform this procedure to replace a FlexRack on the module.



CAUTION: Biological RISKS. This activity or area may expose you to potentially infectious material.

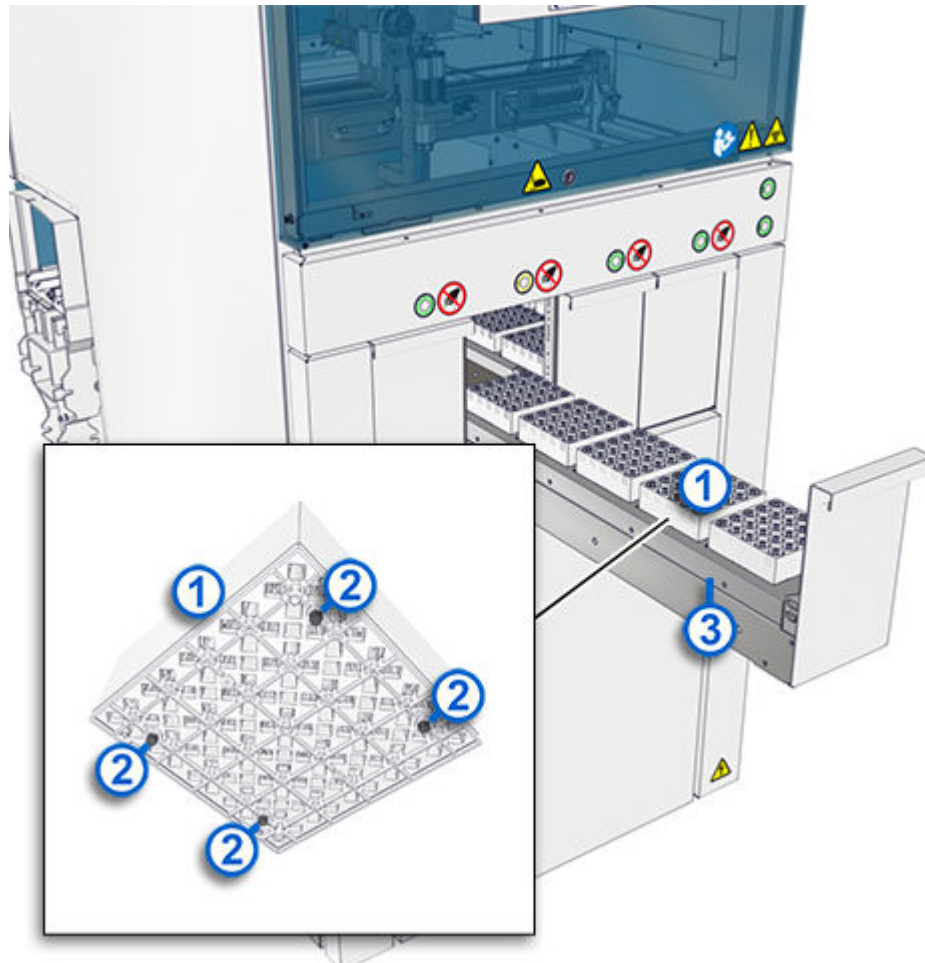


CAUTION: DO NOT REACH INTO DRAWERS. Injury or bodily harm can occur when accessing the module interior while the module is powered on. Do not access the drawers while they are opening or closing. Only load the samples when the drawers are fully open. The drawer push button blinks when it is unsafe to access the drawer. **Never reach into the module through the drawers.**

1. To open the appropriate drawer, press the push button above the drawer (or tap the **Open/Close** button on the monitor).

IMPORTANT: Do not pull on the drawer handle to open the drawer. Pulling on the drawer handle causes an error status for the drawer and does not fully open the drawer.

2. Remove the samples from the damaged FlexRack.
3. Insert the samples into a new FlexRack [1].



4. Remove the damaged FlexRack by pulling it up from the RackPort [3].
5. Insert the new FlexRack [1] on the RackPort [3].
NOTE: Magnets [2] are used to secure the new FlexRack [1] on the RackPort [3].
6. To close the drawer, press the push button above the drawer (or tap the **Open/Close** button on the monitor).

Related information...

Input/Output Module corrective action procedures, page 305

Load samples into FlexRacks, page 169

Unload samples from FlexRacks, page 171

NOTES

Glossary

accessories	Service accessories are items that are used for system installation and for maintenance and troubleshooting procedures. Only approved customer-replaceable components are used as needed for component replacement.
AccessPoint	An active lane element that holds the CARs and samples in place, allowing for secure processing of the samples.
analyzer	An instrument that performs all sample-processing activities from sample aspiration to final result reporting.
bar code label	A unique identifier that contains black bars that represent the sample information.
biological hazard	An activity or an area where the operator may be exposed to potentially infectious material.
CAR	A sample transport vehicle that runs on an intermodular track system.
circle	An area of the track layout that is used to limit the CARs, which can move at the same time in one part of the track. Circles are defined by the default deviation of switches.
Clinical and Laboratory Standards Institute	A nonprofit organization that provides a communication forum for the development, promotion, and use of standards for the worldwide medical science community.
CLSI	See <i>Clinical and Laboratory Standards Institute</i> , page 311.
control system	Software composed of the laboratory information system, including middleware, the Track Sample Manager, and the Track Workflow Manager.
diagnostic procedure	A procedure that can be used to confirm the status of assemblies and mechanisms to help identify and resolve operational problems.
discipline	A grouping of preanalytical and postanalytical modules to ensure that samples remain in certain track areas. Disciplines are used to assign common modules such as Aliquot Module and error areas to a certain location within the laboratory.
FlexRack	An accessory that is used in the RackPorts and can be configured as an input or output area on a customer-specific basis. One FlexRack can hold 25 sample tubes with a tube diameter of 10.5 mm to 18 mm.
GLP systems Track	A modular laboratory automation system designed to automate preanalytical and postanalytical processing, including sample handling, in order to automate sample processing in clinical laboratories. The system consolidates multiple analytical instruments into a unified workflow.
Input/Output Module	The central module for the input and output of sample tubes on the laboratory automation system. In addition, areas of the drawers can be configured as an archive or for loading and unloading racks.

instrument status	The operational mode of an instrument that is connected to the laboratory automation system.
IOM	See Input/Output Module , page 311.
laboratory automation system	A track system that automates preanalytical processing, sample handling, and delivery of samples to analyzers for sample test processing.
laboratory information system	Computer software and hardware used to manage order input, test sequence, and results validation.
lane element	A component that is composed of a plastic body and two lanes. The guiding slot in the lane element is used to guide the CARs. The track has active and passive lane elements.
LAS	See laboratory automation system , page 312.
LIS	See laboratory information system , page 312.
loading area	The area on a module that holds racks for routine and priority processing.
logon (TSM)	An identifier that controls access to certain functionality. The Track Sample Manager (TSM) has three types of logons: • Service • Administrator • Operator Additionally, Abbott Customer Service may provide a user name and a temporary password to operators who call for troubleshooting assistance. This logon authorizes selected functions in addition to those functions allowed by the administrator logon.
maintenance procedure	A scheduled procedure or an as-needed cleaning procedure that is performed to ensure the appropriate functionality of the system.
message	A touchscreen user interface element that provides information about conditions or errors of system operation.
middleware	The interface between the laboratory automation system and the laboratory software. The middleware receives sample information from the laboratory information system and forwards the information to the Track Workflow Manager as a route to the Track Sample Manager.
module	An analyzer that performs all sample-processing activities from sample aspiration to final result reporting.
module status	The operational mode of a module that is connected to the laboratory automation system.
monitor	The main interface between the operator and the modules of the GLP systems Track that allows the operator to select icons, buttons, menu commands, and other screen elements.

password	A string of alphanumeric characters that an operator enters when the operator logs on to the system. A password is used with a user name to provide access to system functionality. A password can be a personal identification number.
pipettor	A device that detects, aspirates, transfers, and dispenses samples.
printed circuit board	A board with electrical circuits that are used to connect electronic or electrical components in electronic equipment such as a computer.
RackPort	An accessory in drawers that is used to position racks for sample tubes and pipettors. A RackPort can be used in module drawers.
radio-frequency identification (RFID) tag	An RFID tag is located on a RackPort and is used for automatic recognition on modules.
robot	A device that loads and unloads the CARs and FlexRacks with its gripper. The robot transports samples into input, output, and error areas.
screen	The screen is displayed on the touchscreen user interface.
system log	An electronic log that displays and stores a record of error-related and informational message codes that can be used to troubleshoot problems associated with system performance and results reporting. When the maximum capacity is reached, messages are replaced on a first-in and first-out basis.
time-out	An error that may occur for software communication functions when a defined time limit is exceeded while the operator waits for a response from a device.
track	A component of the laboratory automation system that is used by CARs to transport samples to the various modules. Externally supplied analyzers are connected to specific interfaces. The track structure is customizable and can be extended as required.
Track Sample Manager	The central software application between the laboratory automation system and the laboratory information system. The Track Sample Manager provides the modules with sample-specific information and instructions; controls and monitors sample transport on the CARs; and provides statistics on performance, throughput, and system events.
track section	Components of the laboratory automation system that include floor and ceiling sections and provide space for laboratory utility lines carrying electricity, water, or wastewater.
Track Workflow Manager	A software interface between the laboratory information system and the Track Sample Manager of the GLP systems Track. Individual sample orders are translated into preanalytical, analytical, and postanalytical processing steps by using an algorithm.
TSM	See Track Sample Manager , page 313.
TWM	See Track Workflow Manager , page 313.

user name	A string of alphanumeric characters that an operator enters when the operator logs on to the system. The user name can be used with a password to provide access to analyzer or module functionality.
window	A screen element that provides more information or functions related to the screen. A window can be accessed by tapping a button on the screen. The window is displayed on top of, or in front of, the screen.

Revision history

Document control numbers	Revision date	Content revised
80003968-101 DRAFT	2022-03-11	Original release

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