

RapID Raw Materials Verification System

Pre-Installation Guide

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Introduction

Delivery

When the system arrives, check that there is no visible damage, with the delivery driver present. If damage has occurred contact the carrier and Agilent Technologies LDA UK Ltd. immediately. Make a photographic record where appropriate.

Check that shock-watch and tilt indicators, if fitted to the outside of the packing cases, have not been activated. If the indicators have been activated notify Agilent Technologies LDA UK Ltd. immediately.

- Overseas customers requiring airfreight; the system will be externally crated in accordance with ISPM15 UK WMMP. The case dimensions (mm) are approximately 720w x 830d x 890h mm. The weight of the case is approximately 105 kg/231 lbs. **Figure 1** is an example of a RapID in a shipping crate. *Note that the design of the product and the design or material of the shipping crate could change.*



Figure 1. RapID Shown in Shipping Crate

Introduction

Unpacking

The RapID requires a **two man lift** to off load palletised or crated shipments and position the system near to its final installation position.

NOTE

An elevator is required to transport the system between building floors. The system should not be manually carried on flights of stairs.

WARNING

The packing crates are heavy and could cause serious injury and damage to the equipment if not handled correctly. Use suitable lifting equipment and procedures.

Unpacking

Do not remove the RapID from its packaging if it has been freight shipped for a minimum of 24 hours to acclimatise.

CAUTION

Do not remove the equipment from the packing crates until they have been moved to their designated installation site. The equipment has been carefully packed to protect the equipment from damage in transit. Removal of the packing equipment could make the equipment vulnerable to damage during transit.

RapID Mechanical Installation

The RapID weighs approximately 47 kg/105 lbs and has the dimensions shown in **Figure 2**.

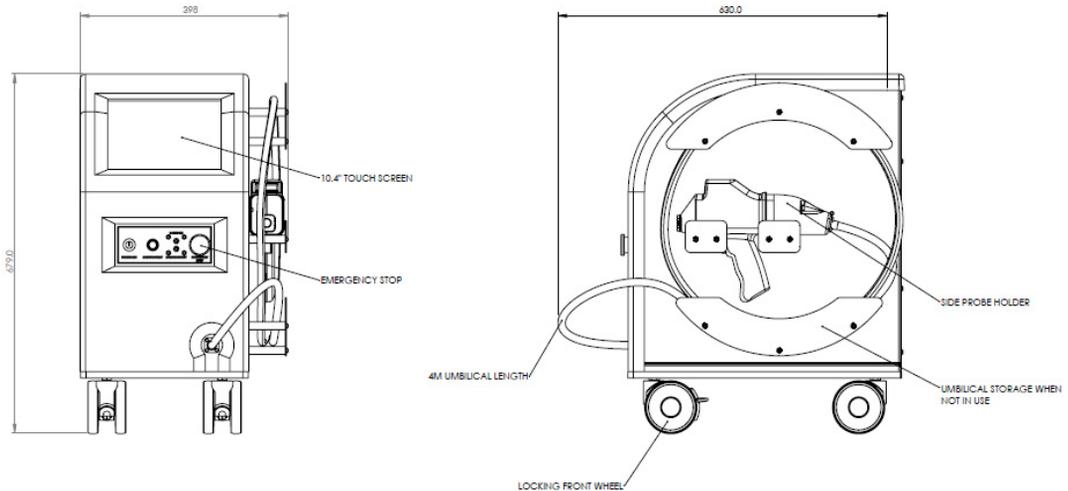


Figure 2. RapID Overall Dimensions

It is recommended that the RapID is positioned on the floor. If it is placed on a higher surface it is recommended that a stable bench or table which is capable of supporting loads up to 100kg. A standard cantilever style table should not be used.

The front wheels should be locked when not moving the instrument. Additional wheel guards for preventing the unit falling off a table should be installed by the customer.

Certain routine maintenance activities require the rear panel to be accessed.

Introduction

RapID Mechanical Installation

The air cooling intake and hot extract are on the bottom of the system as shown in **Figure 3**. Care should be taken not to block these vents.

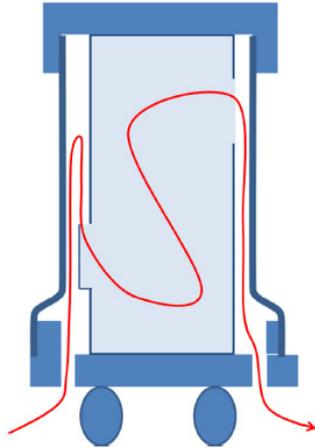


Figure 3. RapID Forced Air Cooling Vents

Specifications

Environmental Requirements

The system should be installed in an environment as detailed here.

It is essential that the climate of the laboratory is controlled to ensure the stability of the system and to ensure that the maximum range of CCD detector temperature control is available. Typically air-conditioning would be installed to maintain the temperature and humidity within the ranges listed below.

Table 1 Environmental Requirements

| | |
|---|---|
| Recommended ambient temperature during operation | 15 to 25 °C |
| Recommended stability of ambient temperature during operation | ±2 °C |
| Storage temperature | >0 °C <50 °C |
| Relative humidity | <70 % non - condensing |
| Location | Substantially dust free environment, free of significant sources of shock and vibration >2m from air conditioning ducts or heating units |
| Size | 69cm x 63cm x 40cm |
| Weight | 47kg |

NOTE

Temperature fluctuations can affect the stability of various components such as the laser. Accuracy and repeatability of measurements is achieved by: allowing the instrument a warm up period prior to use; reducing the ambient temperature fluctuations below the limits described above. Systematic fluctuations from heating and cooling ducts should be reduced by moving the RapID further away from these sources.

IP54 Rating

The instrument is designed for IP54 use which means that it is dust and water resistant. Despite this care should be taken not to expose the instrument to excess water or dust. Special care should be taken around the air inlet\outlet on the bottom of the unit.

The system is designed for safe operation in dusty environments. The IP5n design is achieved in the presence of forced cooling by an air inlet filter.

The system is designed for safe operation in environment where accidental liquid spills may occur. The IPn4 design is achieved through the use of gaskets, suitably rated electrical connectors, and the absence of hazardous voltage on the front panel and in the probe, ensure System safety. Ingress protection is provided for the inactive system and use should be terminated in the event of a spill to the probe.

Electrical Services

The electrical system has been designed meet BS EN 61010-1 2010 standards and checked against US regulations. All installed wiring and electrical components have been selected to comply with European standards and are UL recognized.

The mains electrical input, laser, CCD camera, computer, DC power supply units inputs and outputs are all protected a master power Magnetic Circuit Breaker (MCB), On/Off switch.

There are no high voltage circuits accessible in the sample measurement area, and all low voltage circuits, such as interlocks and door locks, in this region are double insulated or enclosed in trunking.

Specifications

Other Services

The voltage requirement is automatic between two supply ranges.

Table 2 Electrical Supply Requirements

| | |
|-----------------------------|---|
| Number of outlets required. | 1 x single-phase outlet for the RapID |
| Location of inlet | Rear panel towards top centre of RapID |
| Type of electrical inlet | Bulgin IEC C13. An IEC 10A mains lead with either a BS1363 (fused British plug), a CE22 (European plug) or CEE22 (USA plug) as required. |
| Voltage requirements | Automatic between 220-240VAC and 110VAC 10A |
| Current requirements | 10A maximum |
| Line frequency | 50/60Hz |
| Voltage fluctuation | < ± 10 % |

Other Services

The system requires CAT5 network access from an RJ45 connector mounted on the rear of the instrument. This enables network printing and LIMS system access. Some systems are equipped with internal WiFi connectivity for the same purpose.

The instrument may also be connected to USB devices (portable storage, keyboard, mouse, printer) via a Bulgin Type A connection on the rear of the instrument.

Laser Safety and Room Interlocks

The RapID is a Class 3B laser system^{*}. The system is not eye-safe and care must be used in operation. In particular, the customer must put in place risk assessments and operating procedures to allow safe usage. This section describes the details required to enable these assessments to be put in place based on the requirements of Safety of Laser Systems BS EN 60825-1: 2007.

* FDA CDRH Accession Number 1320535-000, dated 26 SEP 2013

Specifications

Measurement Range

A four-pin XLR socket can be found at the rear of the system; this provides one part of the override to the dual channel interlock circuit. Interlocks should only be overridden in a laser-safe environment. The RapID comes fitted with an interlock override plug.

The laser source is described in **Table 3**. Protective housings and interlocks protect personnel from the laser beam in normal operation, with the exception of emission from the probe aperture.

Table 3 Laser Hazard Information

| Description | Value |
|--------------------------------|--------|
| Wavelength | 830nm |
| Classification | 3B |
| Average Power at source | <500mW |
| Operating Mode | CW |
| Nominal Ocular Hazard Distance | <1.2m |
| Nominal Skin Hazard Distance | <12cm |

Two pairs of laser goggles are provided with the system. A pair should be worn by the person operating the probe head.

- Minimum specification of DIR L5 (over prescription spectacle type)

The customer must either:

- Supply other persons within the NOHD with similar goggles.
- Interlock the area of use to stop other persons entering the NOHD.

Measurement Range

The RapID unit is mounted on wheels and portable around a sample booth with the limit of the rear panel connections (mains, USB, Ethernet)

- The system is shipped with 1.5m cables lengths as standard.
- Non-standard lengths may be ordered by the customer at extra cost.

The probe umbilical length allows the probe head to be moved round a sample booth without the need to move the main RapID engine housing.

- The umbilical length is 4m. (other lengths are not available)

Consumables

It is recommended that a supply of reagent grade Isopropyl Alcohol and/or Methanol and lens tissues is used to maintain cleanliness of the laser aperture window.

Windows Authentication

RapID is shipped using 'built-in' user authentication using usernames and passwords. Only users added by an Administrator (of the RapID software) may log-in to the software. If the RapID is to be used within an Active Directory (AD) structure (i.e. Microsoft Windows), a half day of customer representative local IT support is required at the instrument (telephone support is not considered sufficient). Users with credentials on the Windows domain will be able to access the RapID software, although a RapID Administrator is required to set their usage privileges.

IT requirements will include:

- adding the RapID PC to the customer's domain
- configuring instrument default domain user (automatic log-in on start-up)
- configuring network printers
- configuring networked sync backup drives

RapID has wireless and wired network communication options. Customers should check with their local IT department to make sure AD authentication and network rights are available wirelessly or that a local hardwired port is available.

If a printer is to be installed, printer drivers should be supplied (local IT policy may mean internet access is not possible even when the instrument is connected to the AD)

Support Contact Details

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