



**Sierra**  
**BioSystems**

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**K&A**  
**LABS GMBH**

## Pre-Installation Guide

This document is designed to help you prepare your laboratory for the delivery and installation of your new DNA synthesizer, manufactured and installed by Sierra Biosystems/K&A Labs. Proper preparation will ensure a smooth and successful setup, helping your team begin operations quickly and safely.

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## Before Installation

A Sierra Biosystems or K&A Labs representative will contact you before scheduling installation to verify that all pre-installation steps have been completed. Please refer to the final page for checklist.

**Important: Installation cannot be scheduled until all checklist items have been confirmed.**

## Selecting a Location:

- You must be able to quickly disconnect the main power supply if needed.
- The system must be located near ventilation sources to comply with all air quality regulations.
- Ensure the synthesizer is accessible from all four sides.
- (Shasta) Minimum 34 inches of vertical clearance is required to open the cover.

## Instrument Footprint

Instrument	Width	Depth	Height	Weight
K&A S-4-LC	9.8 in (25 cm)	9.8 in (25 cm)	11.8 in (30 cm)	<20 lbs. (9.1 kg)
K&A H-2	9.8 in (25 cm)	15.7 in (40 cm)	15.7 in (40 cm)	<30 lbs. (12.6 kg)
K&A H-8	9.8 in (25 cm)	15.7 in (40 cm)	15.7 in (40 cm)	<30 lbs. (12.6 kg)
K&A H-8-SE	9.8 in (25 cm)	23.6 in (60 cm)	15.7 in (40 cm)	<40 lbs. (18.1 kg)
K&A H-8-VLS	13.8 in (35 cm)	23.6 in (60 cm)	15.7 in (40 cm)	<40 lbs. (18.1 kg)
K&A H-16	13.8 in (35 cm)	23.6 in (60 cm)	17.7 in (45 cm)	<60 lbs. (27.2 kg)
K&A H-32	13.8 in (35 cm)	25.6 in (65 cm)	17.7 in (45 cm)	<60 lbs. (27.2 kg)
Shasta 192/768	35.4 in (90 cm)	33.1 in (84 cm)	31.5 in (80 cm)	300 lbs. (136 kg)
Peripheral Devices	Width	Depth	Height	Weight
Computer	15.8 in (40 cm)	17.5 in (44 cm)	4.0 in (10 cm)	17 lbs. (7.7 kg)
Keyboard	18.0 in (46 cm)	7.5 in (19 cm)	1.5 in (4 cm)	1 lbs. (0.5 kg)
Monitor	21.0 in (53 cm)	9.0 in (23 cm)	14.0 in (36 cm)	7 lbs. (3.2 kg)
Compressor (K&A instruments Only)	11.0 in (28 cm)	5.5 in (14 cm)	6.7 in (17 cm)	20 lbs. (9.1 kg)

## Laboratory Requirements

End-user is responsible for ensuring the laboratory has the following before the installation:

Requirement	Details
Delivery Pathway	Clear path ( $\geq 35.2$ in) from Deliver site/dock to install site.
Work Bench	Must support instrument and computer.
Computer Setup	Located within 5 ft of instrument. A computer will be supplied with the instrument unless client is supplying their own.
Ergonomics	Computer positioned for comfortable use.
Ventilation	Vent or fume hood within 8 ft. Exhaust draw: $-2$ in H <sub>2</sub> O or 100 ft/min.
Waste Disposal	Safe, regulation-compliant method in place.
Electrical	Dedicated 1.5 kVA line. Separate outlets for synthesizer, PC, monitor and compressor (K&A instruments only). UPS recommended.

## Required Equipment (User Supplied)

Required Items	Notes
Argon gas cylinder or Nitrogen gas cylinder ≥99.999% (grade 5 Purity)	The cylinder should hold 7.2 m <sup>3</sup> (257 ft <sup>3</sup> ) of gas when full. Two cylinders recommended: One in use, one spare.  House supply or Dewars acceptable if pressure and purity specifications are met. Please notify Sierra Biosystems/K&A if this is the case.
CGA-580 regulator for gas	0-60psi operating range. If using a house gas supply a one-stage regulator is permitted.
Fittings for Regulator to tubing Connection	¼ in. (6.35 mm) tube connection for Shasta's 6 mm (.236 in) tube connection for K&A's
Waste Collection Method or Device	A HDPE carboy, or centralized in-house waste infrastructure. An HDPE carboy is supplied if requested with instrument purchase.
PPE	Glasses, coats, gloves.
Safety	Spill kit, first-aid, eyewash, emergency shower, fire extinguisher.
Additional Laboratory Equipment	Top loading balance (± 0.01g accuracy.), pipettes, graduated cylinders, beakers, funnels, collection or microcentrifuge tubes, well collection plates (96 or 384 well format instruments)

## Optional Equipment (User Supplied)

Recommended Items	Notes
Heating block or Oven	If heating during deprotection is desired
Evaporator	To dry down samples
Analytical Equipment	e.g. UV/Nanodrop, Analytical HPLC, Mass Spectrometry

## Raw Materials (User Supplied)

*Items	Details/Examples
Columns	Solid Support. CPG Recommended
Phosphoramidites	<b>DNA AMIDITES REQUIRED FOR INITIAL SYNTHESIS</b>
Anhydrous, high-purity acetonitrile	Synthesis Grade, 10 ppm H <sub>2</sub> O recommended 30ppm max
Deblocking reagent	3% DCA in toluene or DCM
Activator reagent	5-ethylthio-1H-tetrazole, ETT
Capping reagents A	**Acetic Anhydride/Tetrahydrofuran
Capping Reagent B	Acetonitrile/ N-Methylimidazole/ Pyridine
Oxidizer	Iodine in Pyridine/Water
Cleavage and Deprotection solution	28-40% Ammonium Hydroxide or AMA (1:1, NH <sub>4</sub> OH: 40% **Methylamine)
Purification materials (if desired)	e.g. GlenPak, HPLC cartridges

\*Verify that any reagents ordered match the bottle type and bottle size configuration given to Sierra Biosystems/K&A when the instrument was ordered. Purchased reagents and amidites from a reputable vendor are highly recommended for initial synthesis.

\*\*Acetic anhydride and methylamine are classified as drug precursor chemicals. Depending on your country or region, you may need to obtain a permit from the appropriate regulatory authority before purchasing or using these substances.

## Personnel Requirements:

An installation will typically take 2-3 days.

- Day 1: Physical Placement and Setup
- Day 2: Calibrations and Training/Trial Synthesis
- Day 3: Processing Samples and any Final Training.
- Set aside one full uninterrupted day for training.
- Assign a safety representative who knows lab protocols.
- Assign someone to assist in lifting and positioning (only Day 1).

## What Sierra Biosystems/K&A Labs Will Provide:

- DNA Synthesizer
- Preconfigured computer with software
- Keyboard, monitor, and mouse
- Regional power cables
- Reagent and amidite caps (customized)
- 10L or 20L Waste Carboy (If requested with instrument)
- Reagent containment bin
- Tubing for gas supply
- Spare parts kit.
- Empty columns for setup

## Key Safety Notes:

- Follow all chemical, biological, and radiation safety policies.
- Secure pressurized gas cylinders and cap them when not in use.
- Use needle-or ball valve type shutoff valves on gas regulators.
- All reagent handling and disposal should be performed under a certified fume hood.
- Flammable solvents must be stored in approved fireproof cabinets.
- Ensure all personnel have received chemical handling and lab safety training.

## Computer Setup and Use Summary:

- The computer supplied includes only one Ethernet (LAN) port. If network access is required, customers may need to provide a USB-to-Ethernet adapter or USB Wi-Fi dongle.
- If a customer supplies their own computer, it must allow for a static IP address assignment or provide access for Sierra Biosystems or K&A personnel to configure one.
- If a Windows Update occurs during synthesis, it may interrupt a synthesis run. Customers are responsible for managing their system's update settings according to their IT policies.

## Questions or Need Help?

Please don't hesitate to contact K&A Labs ([info@ka-labs.de](mailto:info@ka-labs.de)) or your Sierra Biosystems ([ServiceTeam@sierrabio.com](mailto:ServiceTeam@sierrabio.com)) representative if you have any questions while preparing your laboratory. We are excited to get you up and running — **Client success is our priority!**

## CUSTOMER PRE-INSTALLATION CHECKLIST

Please ensure the following items are completed before your installation appointment. Check each box as tasks are completed. A Sierra Biosystems or K&A Labs representative will confirm these items with you prior to scheduling.

### 4 TO 6 WEEKS BEFORE THE INSTALLATION

Item	✓	N/A
Read this entire Pre-Installation Guide thoroughly.		
Prepared the lab bench space and ensured required dimensions and accessibility.		
Confirmed electrical power and outlets are ready and meet specifications.		
Verified ventilation systems are operational and meet safety requirements.		
Argon or Nitrogen gas cylinders are available, secured, and meet purity and pressure specifications.		
Pressure regulator and fittings are available and functional.		
Ensured local permits (if applicable) for exhaust are obtained.		
If necessary, obtain precursor chemical permits for reagents (Depends on chemistry and country/location)		
Order synthesis reagents		
Order synthesis amidites and columns		
Waste disposal and chemical handling protocols are in place.		
PPE and required lab safety equipment are available and accessible.		
Notes		

### 1 TO 2 WEEKS BEFORE THE INSTALLATION

Item	✓	N/A
All the required equipment is available in the lab.		
Verified receipt of Reagents, Amidites and Columns		
Assigned a laboratory representative to assist during installation.		
Scheduled one full day for installation and training with uninterrupted access to the lab.		
Lab personnel assisting with lifting/setup are identified and available.		
Received synthesizer and inspected crates and boxes for damage.		
Reported any shipping damage or discrepancies to Sierra Biosystems/K&A Labs.		
Notify Sierra Biosystems/K&A of any missing startup equipment or materials		
Confirm arrival date and time of Sierra Biosystems or K&A representative		
Notes		