

Discovery DSC 25, DSC 250, DSC 2500, X3 DSC



Site Preparation Guide

Table of Contents

Table of Contents	2
Ideal Setup	3
System Components.....	4
Instrument Measurements	5
Utility Requirements.....	6–7
Power	6
Gas	7
Computer Requirements	8–9
Hardware	8
Software.....	9
Accessories	10
Refrigerated Cooling System (RCS).....	10–11
Finned Air Cooling System (FACS)	12
Liquid Nitrogen Pump (LN Pump).....	13-14
Photocalorimeter Accessory (PCA).....	15
Site Preparation Checklist	16
TA Instrument Offices.....	17



Ideal Setup



IDEAL PLACEMENT AND BENCH MEASUREMENTS

Select a location with adequate floor space and a rigid laboratory bench that is level and is in a vibration-free environment.



Bench width: 183 cm (72 in)

Bench depth: 76 cm (30 in)

Distance from the wall: 30.5 cm (12 in) min.

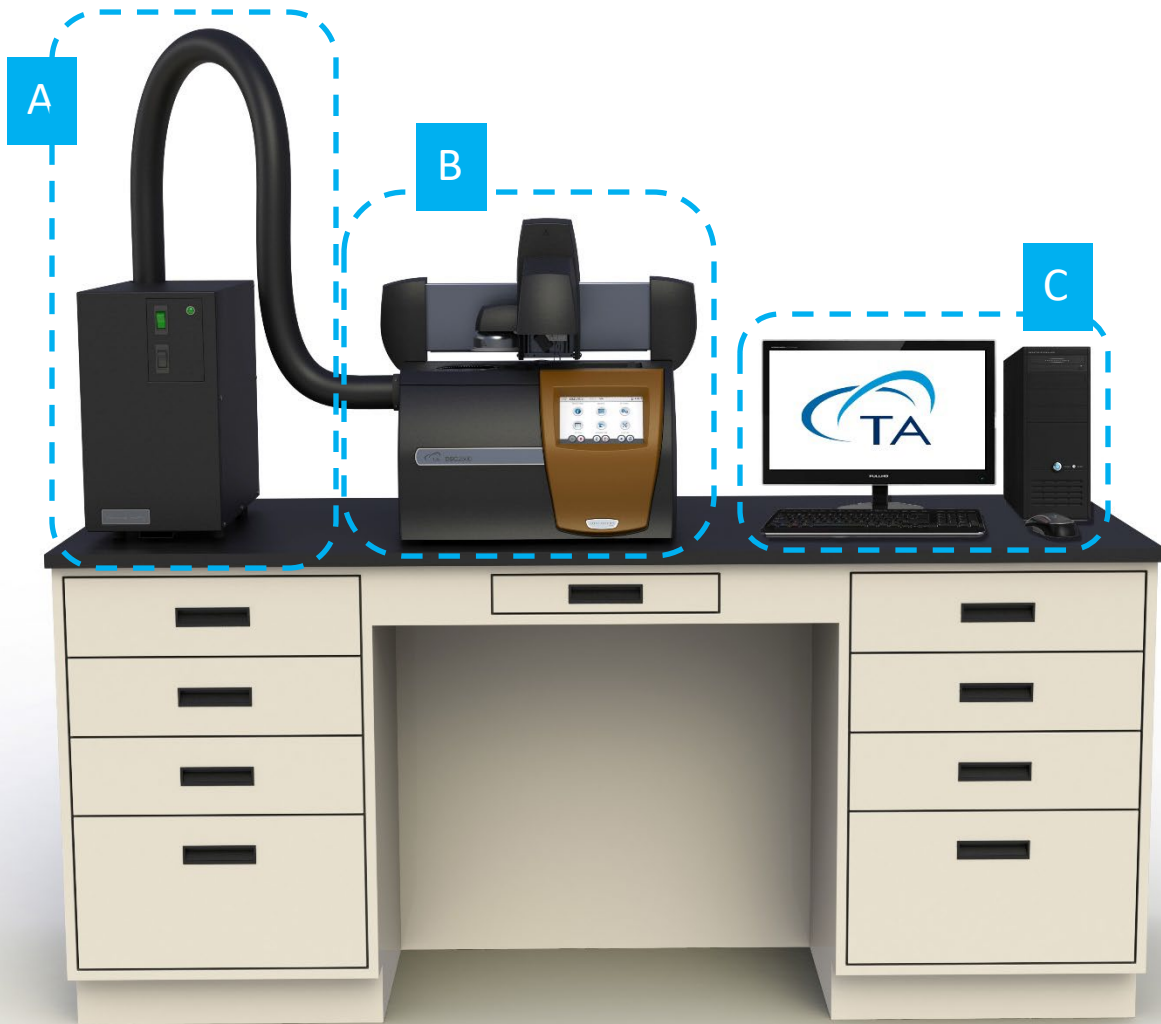


The **casters** on the LN Pump dewar are 61 cm (24 in) x 61 cm (24 in).
Allow for 1–3 ft of space between the DSC and the LN Pump depending on how the supply/return line is oriented.

System Components



MAIN SYSTEM COMPONENTS



- A. Cooling Accessory (RCS shown)
- B. Instrument
- C. Computer (Controller)

Instrument Measurements



DSC WITH AUTOSAMPLER



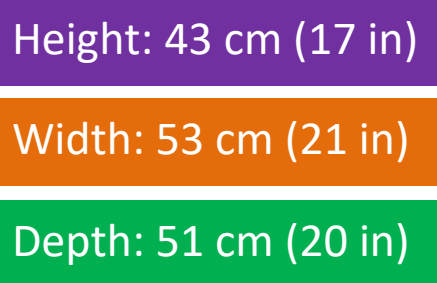
Height: 61 cm (24 in)

Width: 53 cm (21 in)

Depth: 51 cm (20 in)



DSC WITHOUT AUTOSAMPLER



Height: 43 cm (17 in)

Width: 53 cm (21 in)

Depth: 51 cm (20 in)



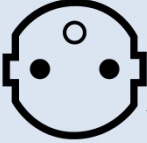

Weight*: 22 kg (48 lbs)

*Includes Autosampler, Autolid, and FACS

Utility Requirements



POWER

Item	Requirement
Power	<ul style="list-style-type: none">• 100–240 VAC, 47–63 Hz, 600 W• Neutral to Ground (NG) voltage max 0.5 volt• Safety ground per local regulation
Power cords provided	<ul style="list-style-type: none">• NEMA 5-15 plug• Type F plug  Type F  NEMA 5-15



Use power cords with plugs appropriate for your circuit.



Supply voltages lower than indicated may result in a degradation of performance.



Ensure that the mains assigned do not also supply power to noise generating equipment nearby, such as motors, welders, transformers, etc.



An independent heavy GROUND wire must be provided through the power hookup. Improper grounding may cause severe damage for which the supplier will not accept responsibility. All power strips must be fully grounded and carry the ground through to the sockets into which the computer is plugged.

Utility Requirements



GAS

Item	Requirement
Cell purge gases	Air, nitrogen, oxygen, argon, helium
Cell/base purge gas pressure:	100–140 kPa (10–20 psig)
Cooling gas (air) pressure for FACS :	170 kPa (25 psig max)
Cooling gas (nitrogen) pressure for RCS :	170 kPa (25 psig max)
Conditions	<ul style="list-style-type: none">• Grade 5• Must be free from oil and dirt
Pressure Regulator	Pressure regulator required – must be rated for required gases
Cooler	Use dry nitrogen as the base purge gas when using a cooler.
Other	1/8" and 1/4" polyethylene tubing and fittings are supplied in the accessory kit



Computer Requirements



HARDWARE REQUIREMENTS

Description	Requirement
Processor	<ul style="list-style-type: none">• Intel® Core™ i5 8400 or better• 2.8 GHz with 9 MB L2 cache
Memory	≥ 16 GB RAM DDR4 2666 SDRAM
Hard drive	≥ 80 GB free space <ul style="list-style-type: none">• 1.5 GB required for Full version of TRIOS• 675 MB required for Lite version of TRIOS (without Online help)
DVD (Optional)	≥ 48x CD-ROM or DVD. Optional for software installation.
Screen resolution	Required: 1280 x 1024 with 24-bit colors Recommended: 1920 x 1080 with 24-bit colors
Graphic memory	128 MB
Screen (LCD) size	Required: 19" or greater Recommended: 24" wide screen

Computer Requirements



SOFTWARE REQUIREMENTS

Item	Requirement
Operating System	<ul style="list-style-type: none">• Windows 10 or 11 Ultimate & Professional• Home version not supported• 64-bit version
Internet	Internet connection is strongly recommended for ongoing support after installation
Service Pack	Microsoft Operating System Service Pack
Updates	Windows Operating System and associated Microsoft updates must be up to date
Network	<p><i>A second network card for corporate connection is recommended.</i></p> <p><i>TA Instruments is not responsible for resolving issues associated with connections to your corporate network.</i></p>
Conflicts	<p><i>TA Instruments is not responsible for resolving hardware/software conflicts created by the addition of third-party hardware or software to the computer.</i></p>

Accessories



REFRIGERATED COOLING SYSTEM (RCS) MEASUREMENTS







	RCS 120	RCS 90	RCS 40
Height	88 cm (34.6 in)	46 cm (18 in)	26 cm (10 in)
Width	35.6 cm (14.5 in)	26 cm (10 in)	26 cm (10 in)
Depth	56 cm (22 in)	51 cm (20 in)	51 cm (20 in)
Weight	102 kg (225 lbs)	47.7 kg (105 lbs)	24.8 kg (55 lbs)

Accessories



REFRIGERATED COOLING SYSTEM (RCS) REQUIREMENTS

Requirements

	RCS 120*	RCS 90*	RCS 40*
	230 VAC/8 A/50 Hz 240 VAC/9 A/60 Hz	120 VAC/14 A/60 Hz 230 VAC/6 A/50 Hz	120 VAC/6.25 A/60 Hz 230 VAC/4 A/50 Hz
	Uses NEMA L6-20 plug	Uses NEMA 5-20P plug	Uses NEMA 5-15 plug
	 L6-20 250V	 5-20 250V OLD 220	 5-15 125V STANDARD

*There is an acceptable voltage tolerance range of 10%



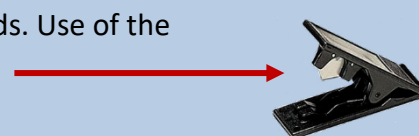
- RCS 90/RCS 40: Place the RCS 90 and RCS 40 on a table separate from the laboratory bench. If no table is available, place the RCS on the bench to the left of the instrument.
- RCS 120: RCS 120 must be kept on the floor



- A base and cooling purge (nitrogen) is required in addition to the standard cell purge
- Use 99.999% pure nitrogen or LN boil-off gas to reduce moisture
- New or recently used calibrated regulator is recommended
- Make sure tubing is cut cleanly and squarely on the ends. Use of the Legris Tubing Cutter #3000-71-00 is recommended
- Leak check all tubing



Do not use Tygon® tubing due to its high moisture permeability



Customer-supplied:

- Regulator
- Moisture trap (P/N 200266.001) to prevent moisture build-up



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Accessories



FINNED AIR COOLING SYSTEM (FACS) REQUIREMENTS



The FACS cannot be used with the X3 DSC.

Requirements



- Cooling gas (air) maximum air pressure: 25 psig (170 kPa gauge)
- Use standard grade nitrogen and clean house air
- Leak check all tubing
- Make sure tubing is cut cleanly and squarely on the ends. Use of the Legris Tubing Cutter #3000-71-00 is recommended



Recommendations:

- Use a filter
- Use a new or recently calibrated regulator



Customer-supplied: Regulator



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Accessories



LIQUID NITROGEN (LN) PUMP MEASUREMENTS



Height: 122 cm (48 in)

Width: 86 cm (34 in)

Depth: 86 cm (34 in)

Weight EMPTY: 50 kg (110 lbs)

Weight FULL: 92.5 kg (204 lbs)

Accessories



LIQUID NITROGEN (LN) PUMP REQUIREMENTS

Requirements



100–240 VAC, 200 W, 50/60 Hz

Requirements

- Cooling gas (nitrogen or LN boil-off) maximum pressure for use with the LN2P = 170 kPa gauge (25 psig)
- Low pressure Liquid Nitrogen dewar required

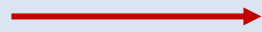


Do not use Tygon® due to its high moisture permeability

- Use new or recently serviced/calibrated regulator
- Use 99.999% pure helium to reduce moisture build-up in the cell



Recommendations

- Helium gas recommended for cell purge via the GAS 2 port
- Make sure tubing is cut cleanly and squarely on the ends. Use of the Legris Tubing Cutter #3000-71-00 is recommended 
- Leak check all tubing
- Use the gas dryer (P/N 200266.001) to pre-dry and indicate unsatisfactory moisture levels
- Use the purge gas purifier (P/N 970425.901) to achieve a dew point of -180°C



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Accessories



PHOTOCALORIMETER ACCESSORY MEASUREMENTS



The PCA cannot be used with the DSC 25 or X3 DSC.



Height: 15 cm (6 in)

Width: 28 cm (11 in)

Depth: 44 cm (17 in)

Weight: 9.4 kg (21 lbs)



PHOTOCALORIMETER ACCESSORY REQUIREMENTS

Requirements



Same general requirements as DSC. See pages 5–7.



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

TA Instruments Offices

For information on our latest products, contact information, and more, see our website at:
<http://www.tainstruments.com>.

To find your local TA Instruments office and contact information, visit
<http://www.tainstruments.com/contact/ta-directory/>

TA Instruments – Waters LLC
Corporate Headquarters
159 Lukens Drive
New Castle, DE 19720
USA

Telephone: 302-427-4000
Fax: 302-427-4001
Email: info@tainstruments.com