

Discovery DMA 850



Site Preparation Guide

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Ideal Setup



IDEAL PLACEMENT AND BENCH MEASUREMENTS

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



Floor space for ACS: 3 ft²

Floor space for GCA: 4 ft²

Floor space for DMA-RH: 1.5 ft²

Bench length: 61–183 cm
(24–72 in)

Marble table length: 89 cm (35 in)

Marble table depth: 61 cm (24 in)

Marble table distance from the
wall: 31 cm (12 in) min.

System Components



MAIN SYSTEM COMPONENTS



- A. Instrument
- B. Controller
- C. Power Control Box

Instrument Measurements



DMA 850



Height with furnace OPEN: 68.5 cm (27 in)

Height with furnace CLOSED: 53.5 cm (21 in)

Width: 38 cm (15 in)

Depth: 47 cm (18.5 in)

Weight: 34 kg (75 lbs)



POWER CONTROL BOX

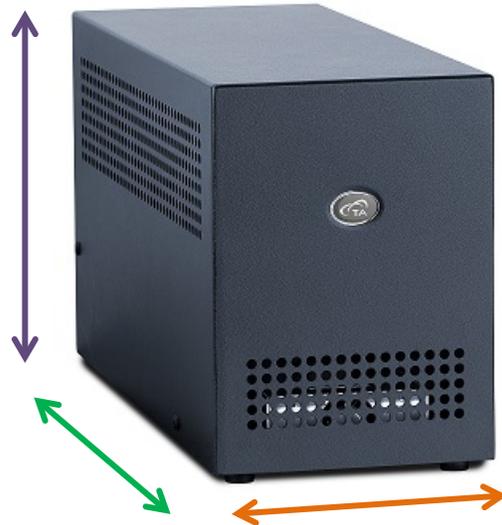
Height: 25 cm (10 in)

Width: 18 cm (7 in)

Depth: 43 cm (17 in)

Weight: 5.6 kg (12.5 lbs)

Power cable length:
200 cm (78 in)



Utility Requirements



POWER

- 100–240 VAC, 50/60 Hz, 14 A max
- Safety ground per local regulation



European



NEMA 5-15P



GAS

Furnace purge gases: air, nitrogen, argon, helium

Description	Requirement
Air bearing pressure:	<ul style="list-style-type: none">• 410–450 kPa (60–65 psig)• Flow rate: 2 L/min
Cooling gas pressure:	175–830 kPa (20–120 psig)
Conditions	<ul style="list-style-type: none">• Must be dry• Must be free from oil and dirt
Other	1/8" 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™ 2 Duo or better• 2.93 GHz with 3 MB L2 cache
Memory	Minimum: 4 GB RAM (if the computer is only acting as the controller) Recommended: 8 GB RAM or greater (for best analysis performance)
Hard drive	≥ 80 GB free space <ul style="list-style-type: none">• 700 MB required for Full version of TRIOS• 400 MB required for Lite version of TRIOS (without Online help)
DVD	≥ 48x CD-ROM or DVD
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
Additional Ethernet card(s)	Necessary if connecting the instrument directly and access is needed to the Corporate LAN.

Computer Requirements



SOFTWARE REQUIREMENTS

Item	Requirement
Operating System	<ul style="list-style-type: none">• Windows 7, 8, 10 Ultimate, Enterprise, & Professional• Home version not supported
	Minimum: 32-bit version (if the computer is only acting as the controller) Recommended: 64-bit version (for best analysis performance)
Other	Microsoft Operating System Service Pack
Other	Must be up-to-date
Browser	Internet Explorer
Network	<i>TA Instruments is not responsible for resolving issues associated with connections to your corporate network.</i>
Conflicts	<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>

Gas Cooling Accessory (GCA)



GCA MEASUREMENTS



Standard diameter: 51 cm (20 in)

Height: 107 cm (42 in)

Width: 46 cm (18 in)

Depth: 79 cm (31 in)

Weight EMPTY: 46 kg (101 lbs)

Weight FULL: 87 kg (191 lbs)

Transfer line: 1.8 m (6 ft)



GCA REQUIREMENTS

Requirements

	<p>120 VAC at 0.9 KW, 47–63 Hz OR TA Instruments transformer (PN 546153.901) for 220 VAC environments</p>
	<ul style="list-style-type: none"> Bulk low-pressure liquid nitrogen tank to refill the 50 L GCA dewar Pressure: 140–170 kPa gauge (20–25 psig)



Circulator	Power	Cooling	Gas	LN ₂	Fluid	Light	Hardware	Software	Temp	Lab	Customer



Air Chiller System (ACS)



ACS-2 MEASUREMENTS WITH CHILLER PANEL



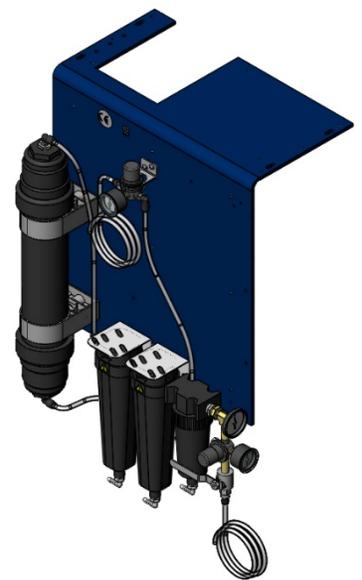
Height: 88.5 cm (35 in)

Width: 52 cm (20.5 in)

Depth: 56 cm (22 in)

Weight: 112 kg (247 lbs)

CHILLER PANEL



ACS-3 MEASUREMENTS WITH CHILLER PANEL



Height: 112 cm (44 in)

Width: 52 cm (20.5 in)

Depth: 56 cm (22 in)

Weight: 137 kg (302 lbs)

Air Chiller System (ACS)



AIR CHILLER SYSTEM REQUIREMENTS

Requirements



- 220–230 VAC
- 50 Hz or 60 Hz (refer to the serial number plate on the rear of the unit. The ACS is line frequency specific.)
- Nominal 9.3A, max 12A
- US sites require an L6-20 outlet



NEMA L6-20 plug



- Gas:
 - Air or nitrogen
 - Pressure: 6.2–6.9 bar (90–100 psig)
 - Flow rate: 200 L/min
 - Temperature: 20–30°C
 - Dew point: Must not exceed the ambient air temperature by more than 5°C. Specified at operating pressure.



- Lab Environment (must be below 25°C):
 - 12°C–21°C = Acceptable
 - 21°C–24°C = Ideal
- Leave 20 cm (8 in) of space in the front and back of the ACS for ventilation



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Nitrogen Purge Cooler (NPC)



NITROGEN PURGE COOLER MEASUREMENTS



Height: 38 cm (15 in)

Width: 30 cm (12 in)

Depth: 18 cm (7 in)

Weight EMPTY: 3 kg (6 lbs)

Volume: 2.5 L



NITROGEN PURGE COOLER REQUIREMENTS

Requirements



- Nitrogen only
- Pressure: 172–827 KPa (25–120 psig)
- Flow Rate: 30 L/m



- Relative humidity: 5% to 80% RH from 15°C to 31°C, decreasing to 66% RH at 35°C (non-condensing)
- Operating altitude: 2000 meters minimum



Fill the container with LN₂



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

DMA-RH



DMA-RH ACCESSORY MEASUREMENTS



Height: 38 cm (15 in)

Width: 30 cm (12 in)

Depth: 51 cm (20 in)

Weight EMPTY: 30 kg (67 lbs)



DMA-RH ACCESSORY REQUIREMENTS

Requirements



90–265 VAC, 45–65 Hz



- Dewpoint of -40°C or less
- Pressure: 20 psig
- Flow Rate: 30 L/m
- Nitrogen



15–35°C ambient temperature



Requires distilled water



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Air Filter Regulator



AIR FILTER REGULATOR MEASUREMENTS



P/N 986320.901

Height: 24 cm (9.4 in)

Width: 23 cm (9 in)

Weight: 2.7 kg (6 lbs)

Port size: 1/8"

Distance between mounting holes:
7.5 cm (2.95 in)



AIR FILTER REGULATOR REQUIREMENTS

Requirements



- Inlet pressure: 551–1034 KPa (80–150 psig)
- Outlet pressure: 413 KPa (60 psig)
- Must be dry, and free from oil or dirt



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Air Compressor Accessory



AIR COMPRESSOR MEASUREMENTS



Height: 23 cm (9 in)

Width: 38 cm (15 in)

Depth: 38 cm (15 in)

Weight: 10 kg (22 lbs)



AIR COMPRESSOR REQUIREMENTS

Requirements



Outlet pressure: 413 KPa (60 psig)



120 VAC, 50/60 Hz, 0.3 Kw or TA Instruments Step-Down Transformer (P/N 203570.001) for 220 VAC environments.



Instrument should not be located in an enclosed area; heat build-up occurs if air does not flow freely.



Circulator



Power



Cooling



Gas



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

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