

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: 183 cm (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

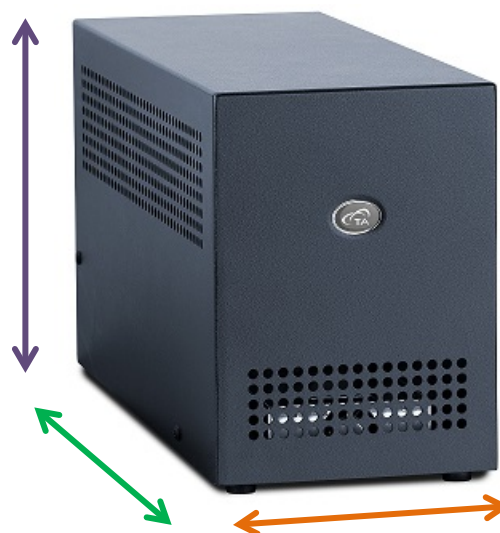
Height: 25 cm (10 in)

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, oxygen, 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) –nitrogen, air |
| 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 | Required: ≥ 4 GB RAM Recommended: 8 GB RAM |
| 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 |

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 |
| | Required: 32-bit or 64-bit version Recommended: 64-bit version |
| 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



120 VAC at 0.9 KW, 47–63 Hz **OR** TA Instruments transformer (PN 546153.901) for 220 VAC environments



- 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



LN₂



Fluid



Light



Hardware



Software



Temp



Lab



Customer

Air Chiller System (ACS)



ACS-2 MEASUREMENTS WITH CHILLER PANEL



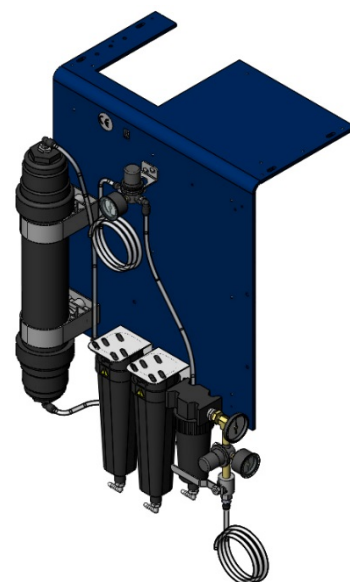
Height: 88.5 cm (35 in)

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

Site Preparation Checklist



Discovery DMA 850

| | |
|--|--|
| | <p>Sufficient bench and floor space for instrument, computer, and cooling accessory (if needed)</p> <div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> Bench length: 183 cm (72 in) <input type="checkbox"/> Bench depth: 76 cm (30 in) <input type="checkbox"/> Marble table length: 89 cm (35 in) <input type="checkbox"/> Marble table depth: 61 cm (24 in) </div> <div> <input type="checkbox"/> Floor space for cooling accessory: <input type="checkbox"/> GCA: 4 ft² <input type="checkbox"/> ACS: 3 ft² <input type="checkbox"/> DMA-RH: 1.5 ft² </div> </div> |
| | <p>Instrument power is 100–240 VAC, 47–63 Hz, 14 A min</p> |
| | <p>Accessory (check all that apply):</p> <ul style="list-style-type: none"> <input type="checkbox"/> Air Chiller System <input type="checkbox"/> Air Filter Regulator Assembly <input type="checkbox"/> Air Compressor Accessory <input type="checkbox"/> Nitrogen Purge Cooler <input type="checkbox"/> Gas Cooling Accessory <input type="checkbox"/> DMA-RH Accessory |

I hereby acknowledge that all utility requirements have been met per the checklist above and that they will be ready at the agreed time of installation.

If all utility requirements are not met at the agreed time of installation, additional charges may be incurred for a return Service trip.

Customer *DD* / *MM* / *YYYY*

Company *City* *State* *Country*

Please send a signed copy of the completed checklist to your local Service representative.

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