Site Preparation Guide
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IDEAL PLACEMENT AND BENCH MEASUREMENTS

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

- **Bench width**: 61–183 cm (24–72 in)
- **Marble table width**: 89 cm (35 in)
- **Marble table depth**: 61 cm (24 in)
- **Marble table distance from the wall**: 31 cm (12 in) min.
- **Floor space for ACS**: 4 ft²
- **Floor space for GCA**: 4 ft²
- **Floor space for DMA-RH**: 1.5 ft²
- **Bench width**: 61–183 cm (24–72 in)
MAIN SYSTEM COMPONENTS

A. Instrument
B. Controller
C. Power Control Box
**DMA 850**

- Height with furnace OPEN: 68.5 cm (27 in)
- Height with furnace CLOSED: 53.5 cm (21 in)
- Depth: 47 cm (18.5 in)
- Width: 38 cm (15 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, 47–63 Hz, 1400 W
- Safety ground per local regulation
- Neutral to ground <1 volt

GAS

Furnace purge gases: air, nitrogen, argon, helium

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air bearing pressure:</td>
<td>• 410–450 kPa (60–65 psig)  &lt;br&gt;• Flow rate: 4 L/min</td>
</tr>
<tr>
<td>Cooling gas pressure:</td>
<td>175–830 kPa (20–120 psig)</td>
</tr>
<tr>
<td>Conditions</td>
<td>• Must be dry  &lt;br&gt;• Must be free from oil and dirt</td>
</tr>
<tr>
<td>Other</td>
<td>1/8” polyethylene tubing and fittings are supplied in the accessory kit</td>
</tr>
</tbody>
</table>
# HARDWARE REQUIREMENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>• Intel® Core™ i5 8400 or better&lt;br&gt;• 2.8 GHz with 9 MB L2 cache</td>
</tr>
<tr>
<td>Memory</td>
<td>≥ 16 GB RAM DDR4 2666 SDRAM</td>
</tr>
<tr>
<td>Hard drive</td>
<td>≥ 80 GB free space&lt;br&gt;• 1.5 GB required for Full version of TRIOS&lt;br&gt;• 675 MB required for Lite version of TRIOS (without Online help)</td>
</tr>
<tr>
<td>DVD (optional)</td>
<td>≥ 48x CD-ROM or DVD (optional for installing TRIOS)</td>
</tr>
<tr>
<td>Screen resolution</td>
<td>Required: 1280 x 1024 with 24-bit colors&lt;br&gt;Recommended: 1920 x 1080 with 24-bit colors</td>
</tr>
<tr>
<td>Graphic memory</td>
<td>128 MB</td>
</tr>
<tr>
<td>Screen (LCD) size</td>
<td>Required: 19” or greater&lt;br&gt;Recommended: 24” wide screen</td>
</tr>
<tr>
<td>Network card</td>
<td>Ethernet 10Base T/100 Base TX</td>
</tr>
<tr>
<td>Additional Ethernet card(s)</td>
<td>Necessary if connecting the instrument directly and access is needed to the Corporate LAN.</td>
</tr>
<tr>
<td>Ethernet Cabling</td>
<td>10/100BaseTX Ethernet hub/switch. Must be EIA-568B Category 5+ UTP</td>
</tr>
<tr>
<td>Client-Server Protocol</td>
<td>DHCP</td>
</tr>
<tr>
<td>Image Capture (Camera Option)</td>
<td>DirectX 9.0 or higher</td>
</tr>
<tr>
<td>TCP/IP ports used</td>
<td>• TCP: 20010, 20011&lt;br&gt;• UDP: 5050, 5056</td>
</tr>
</tbody>
</table>
# SOFTWARE REQUIREMENTS

<table>
<thead>
<tr>
<th>Item</th>
<th>TRIOS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating System</td>
<td>• Windows 10 Enterprise, Ultimate, &amp; Professional</td>
</tr>
<tr>
<td></td>
<td>• Home version not supported</td>
</tr>
<tr>
<td></td>
<td>• ≥ 64-bit version</td>
</tr>
<tr>
<td>Internet</td>
<td><strong>Internet connection is strongly recommended for ongoing support after installation</strong></td>
</tr>
<tr>
<td>Service Pack</td>
<td>Microsoft Operating System Service Pack</td>
</tr>
<tr>
<td>Updates</td>
<td>Windows Operating System and associated Microsoft updates must be up to date.</td>
</tr>
<tr>
<td></td>
<td>Windows 10 must be 1709 or later.</td>
</tr>
<tr>
<td>Network</td>
<td><strong>A second network card for corporate connection is recommended.</strong></td>
</tr>
<tr>
<td></td>
<td><strong>TA Instruments is not responsible for resolving issues associated with connections to your corporate network.</strong></td>
</tr>
<tr>
<td>Conflicts</td>
<td><strong>TA Instruments is not responsible for resolving hardware/software conflicts created by the addition of third-party hardware or software to the computer.</strong></td>
</tr>
</tbody>
</table>
Gas Cooling Accessory (GCA) V3

GCA V3 MEASUREMENTS

- Dewar diameter: 46 cm (18 in)
- Height: 112 cm (44 in)
- Width: 46 cm (18 in)
- Depth: 79 cm (31 in)
- Weight EMPTY: 47 kg (104 lbs)
- Weight FULL: 88 kg (194 lbs)
- Transfer line: 1.8 m (6 ft)

GCA V3 REQUIREMENTS

Requirements

- 100–240 VAC at 0.9 kVA, 47–63 Hz
- Approved for operation on a 20 A branch circuit with protective conductor (ground)
- Bulk low-pressure liquid nitrogen tank to refill the 50 L GCA dewar
- Pressure: 90 kPa gauge (13 psig) relief valve on tank
  345 kPa gauge (50 psig) on fill line
- Use low pressure supply tank only. Recommended filling pressure is 140 to 170 kPa gauge (20 to 25 psig)
Air Chiller System (ACS)

ACS-2 MEASUREMENTS WITH CHILLER PANEL

- Height: 88.5 cm (35 in)
- Width: 67 cm (26.5 in)
- Depth: 56 cm (22 in)
- Weight: 103 kg (227 lbs)

ACS-3 MEASUREMENTS WITH CHILLER PANEL

- Height: 112 cm (44 in)
- Width: 67 cm (26.5 in)
- Depth: 56 cm (22 in)
- Weight: 128 kg (282 lbs)
CHILLER PANELS

DMA Chiller Panel
P/N 986400.901

Combined DHR/DMA Chiller Panel
P/N 405400.901
P/N 986400.901 with DHR upgrade kit installed

Height: 64 cm (25 in)

Width: 56 cm (22 in)

Depth: 38.1 (15 in)

Weight: 986400.901–6.75 kg (15 lbs)
405400.901–7.25 kg (16 lbs)
# Air Chiller System (ACS)

## AIR CHILLER SYSTEM REQUIREMENTS

<table>
<thead>
<tr>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 50 Hz: 207–252 VAC (refer to the serial number plate on the rear of the unit. The ACS is line frequency specific.)</td>
</tr>
<tr>
<td>• 60 Hz: 216–252 VAC (refer to the serial number plate on the rear of the unit. The ACS is line frequency specific.)</td>
</tr>
<tr>
<td>• 8A, 9A, 9.1A, or 11A (refer to the serial number plate on the rear of the unit)</td>
</tr>
<tr>
<td>• US sites require an L6-20 single-phase outlet</td>
</tr>
<tr>
<td>• Gas:</td>
</tr>
<tr>
<td>• Air or nitrogen</td>
</tr>
<tr>
<td>• Pressure: 6.9 bar (100 psig)</td>
</tr>
<tr>
<td>• Flow rate: 200 SLPM</td>
</tr>
<tr>
<td>• Temperature: 20–30°C</td>
</tr>
<tr>
<td>• Dew point: -40°C (-40°F) NOTE: Dew point is specified at operating pressure. Supplying dryer air at a lower dew point will extend continuous operation.</td>
</tr>
<tr>
<td>• Lab Environment (must be below 25°C):</td>
</tr>
<tr>
<td>• 21°C–24°C = Ideal</td>
</tr>
<tr>
<td>• Leave 20 cm (8 in) of space in the front and back of the ACS for ventilation.</td>
</tr>
<tr>
<td>• 4 ft² required floor space for the ACS.</td>
</tr>
</tbody>
</table>
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
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

<table>
<thead>
<tr>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>90–265 VAC, 45–65 Hz</td>
</tr>
<tr>
<td>• Dewpoint of -40°C or less</td>
</tr>
<tr>
<td>• Pressure: 20 psig</td>
</tr>
<tr>
<td>• Flow Rate: 3 L/m</td>
</tr>
<tr>
<td>• Nitrogen</td>
</tr>
<tr>
<td>15–35°C ambient temperature</td>
</tr>
<tr>
<td>Requires distilled water</td>
</tr>
</tbody>
</table>

Revision I  Issued July 2021
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

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 Compressor Accessory

AIR COMPRESSOR MEASUREMENTS

AIR COMPRESSOR REQUIREMENTS

Requirements

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Outlet pressure:</strong></td>
<td>413 KPa (60 psig)</td>
</tr>
<tr>
<td><strong>120 VAC, 50/60 Hz, 0.3 Kw or TA Instruments Step-Down Transformer (P/N 203570.001)</strong></td>
<td>for 220 VAC environments.</td>
</tr>
<tr>
<td><strong>Instrument should not be in an enclosed area; heat build-up occurs if air does not flow freely.</strong></td>
<td></td>
</tr>
</tbody>
</table>

Height: 23 cm (9 in)
Width: 38 cm (15 in)
Depth: 38 cm (15 in)
Weight: 10 kg (22 lbs)
Discovery DMA 850

<table>
<thead>
<tr>
<th>Sufficient bench and floor space for instrument, computer, and cooling accessory (if needed)</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐ Bench length: 61–183 cm (24–72 in)</td>
</tr>
<tr>
<td>☐ Bench depth: 76 cm (30 in)</td>
</tr>
<tr>
<td>☐ Marble table length: 89 cm (35 in)</td>
</tr>
<tr>
<td>☐ Marble table depth: 61 cm (24 in)</td>
</tr>
<tr>
<td>☐ Floor space for cooling accessory:</td>
</tr>
<tr>
<td>☐ GCA: 4 ft²</td>
</tr>
<tr>
<td>☐ ACS: 4 ft²</td>
</tr>
<tr>
<td>☐ DMA-RH: 1.5 ft²</td>
</tr>
</tbody>
</table>

| ☐ Neutral to ground < 1 volt |
| ☐ Instrument power: 100–240 VAC, 47–63 Hz, 1440 W |
| ☐ Pneumatics: 80–150 psig |

| ☐ Computer meets all hardware requirements |
| ☐ I have two network cards installed on the computer to be able to connect to both the corporate LAN and the instrument. |
| ☐ Computer meets all software requirements |
| ☐ Customer’s IT personnel has provided Administrative privileges on the controller computer |
| ☐ The Customer’s IT personnel will be on site the day of installation |

| Accessory (check all that apply): |
| ☐ Air Chiller System with Chiller Panel |
| ☐ Air Filter Regulator Assembly |
| ☐ Air Compressor Accessory |
| ☐ Nitrogen Purge Cooler |
| ☐ Gas Cooling Accessory |
| ☐ DMA-RH Accessory |

| ☐ The Customer assumes responsibility for any damage that occurs when the instrument is moved by someone other than a trained TA Instruments Service Representative. |

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.
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/

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