Site Preparation Guide
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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. For optimal performance, it is recommended that the instrument be placed by itself on a separate marble table.

- Bench width: 2.1 m (7 ft)
- Bench depth: 76 cm (30 in) min.
- Distance from the wall: 20 cm (8 in) min.
A. Computer (Controller)
B. Instrument
C. Power Supply Enclosure
D. Environmental Supply Enclosure
E1. Liquid Nitrogen Controller & LN₂ Tank
    OR
E2. Air Cooling System
Instrument Measurements

**MAIN INSTRUMENT**
- Height: 104 cm (39 in)
- Width: 46 cm (18 in)
- Depth: 56 cm (22 in)
- Weight: 97 kg (213 lbs)

**POWER SUPPLY ENCLOSURE**
- Height: 34 cm (13.5 in)
- Width: 32 cm (12.5 in)
- Depth: 48 cm (19 in)

**ENVIRONMENTAL SUPPLY ENCLOSURE**
- Height: 11 cm (4.5 in)
- Width: 32 cm (12.5 in)
- Depth: 48 cm (19 in)
## Utility Requirements

### POWER

<table>
<thead>
<tr>
<th>With FCO:</th>
<th>With APS, Peltier Plate, or Sealed Bath and <strong>without</strong> FCO:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• 180–264 VAC, 47–63 Hz, and single phase</td>
<td>• 90–264 VAC, 47–63 Hz, and single phase</td>
</tr>
<tr>
<td>• Dedicated 20 A outlet. US sites require an L6-20 outlet.</td>
<td>• Neutral to ground &lt; 1 volt</td>
</tr>
<tr>
<td></td>
<td>• Dedicated 15 A outlet</td>
</tr>
</tbody>
</table>

Line voltage connects into power supply enclosure via 2.44 m (8 ft) power cable

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### GAS

<table>
<thead>
<tr>
<th><strong>Air Supply:</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conditions</strong></td>
</tr>
<tr>
<td>• Must be dry</td>
</tr>
<tr>
<td>• Must be free from oil (0.01 mg/m³) and dirt (5µm)</td>
</tr>
<tr>
<td><strong>Dew Point</strong></td>
</tr>
<tr>
<td>-10°C or better</td>
</tr>
<tr>
<td><strong>Pressure</strong></td>
</tr>
<tr>
<td>100 psig (0.7 MPa)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Flow Rate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>• WITH FCO: 9.5 scfm (270 L/min)</td>
</tr>
<tr>
<td>• WITHOUT FCO: 4 scfm (115 L/min)</td>
</tr>
</tbody>
</table>

If using N₂ gas as FCO heater source, air flow rate is 6 scfm (170 L/min). Separate N₂ gas source must be 70–125 psig and able to sustain a flow rate of 3.5 scfm (100 L/min)

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*TA Instruments recommends purchasing the air dryer to account for the necessary dew point and air quality.
# Computer Requirements

## HARDWARE REQUIREMENTS

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement</th>
</tr>
</thead>
</table>
| Processor                    | • 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  
                              |   • 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 installing TRIOS)                         |
| 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                                             |
| USB II port                  | Required with FCO Camera option.                                            |
| Network card                 | Ethernet 10Base T/100 Base TX                                               |
| Additional Ethernet card(s)  | Necessary if connecting the instrument directly and access is needed to the Corporate LAN. |
| Ethernet Cabling             | 10/100BaseTX Ethernet hub/switch. Must be EIA-568B Category 5+ UTP          |
| Client-Server Protocol       | DHCP                                                                        |
| Image Capture (Camera Option)| DirectX 9.0 or higher                                                       |
| TCP/IP ports used            | • TCP: 20010, 20011  
                              |   • UDP: 5050, 5056                                                          |
## SOFTWARE REQUIREMENTS

<table>
<thead>
<tr>
<th>Item</th>
<th>TRIOS</th>
</tr>
</thead>
</table>
| **Operating System** | • Windows 10 Enterprise, 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.  
|                | Windows 10 must be 1709 or later.                                  |
| Network       | A second network card for corporate connection is recommended.     |
|               | TA Instruments is not responsible for resolving issues associated with connections to your corporate network. |
| Conflicts     | TA Instruments is not responsible for resolving hardware/software conflicts created by the addition of third-party hardware or software to the computer. |
ACS-2 MEASUREMENTS

Height: 88.5 cm (35 in)
Width: 67 cm (26.5 in)
Depth: 56 cm (22 in)
Weight: 96 kg (211 lbs) WITHOUT Chiller Panel
Weight: 112 kg (247 lbs) WITH Chiller Panel

ACS-3 MEASUREMENTS

Height: 112 cm (44 in)
Width: 67 cm (26.5 in)
Depth: 56 cm (22 in)
Weight: 121 kg (267 lbs) WITHOUT Chiller Panel
Weight: 137 kg (302 lbs) WITH Chiller Panel
FCO CHILLER PANEL MEASUREMENTS – SMC MODEL

- Height: 68.6 cm (27 in)
- Width: 54.6 cm (21.5 in)
- Depth: 20.3 cm (8 in)
- Weight: 8.2 kg (18 lbs)

FCO CHILLER PANEL MEASUREMENTS – PARKER MODEL (DISCONTINUED)

- Height: 86.4 cm (34 in)
- Width: 48.3 cm (19 in)
- Depth: 38.1 cm (15 in)
- Weight: 15.8 kg (35 lbs)
## AIR COOLING SYSTEM REQUIREMENTS

### Requirements

- **50 Hz**: 207–252 VAC (refer to the serial number plate on the rear of the unit. The ACS is line frequency specific.)
- **60 Hz**: 216–252 VAC (refer to the serial number plate on the rear of the unit. The ACS is line frequency specific.)
- **8A, 9A, 9.1A, or 11A** (refer to the serial number plate on the rear of the unit)
- **US sites require an L6-20 single-phase outlet**

### Gas:
- **Air or nitrogen**
- **Pressure**: 6.9 bar (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.
- **4 ft²** required floor space for the ACS.
## AIR DRYER REQUIREMENTS

### Requirements

- Inlet air: 100–130 psig (0.7–0.9 MPa); air temperature ~20°C; Relative Humidity of 70% or less at RT with particle size of 5 microns (0.0002 in) or less
- Air source into dryer should be oil-less compressed air

- The dryer weighs 3.2 kg (7 lbs)
- It has two mounting holes 22.3 cm (8.8 in) apart
- Must be mounted upright to the wall within 183–244 cm (6–8 ft) of the air source

### Customer must provide:

- Means to connect to a 3/8” NPT male connector on the inlet hose (provided by TA Instruments) of the air dryer
- Gauge to monitor the air into the air dryer
- Water trap if there is excessive moisture levels that result in immediate condensation into water (installed by Customer’s maintenance personnel)
LIQUID NITROGEN CONTROLLER MEASUREMENTS

- Height: 58 cm (23 in)
- Width: 28 cm (11 in)
- Depth: 36 cm (14 in)
- Weight when EMPTY: 14 kg (30 lbs)
- Weight when FULL: 15 kg (33.5 lbs)

LIQUID NITROGEN CONTROLLER REQUIREMENTS

Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Should be placed on the same side as the FCO</td>
</tr>
<tr>
<td>Customer must provide: 160 L (or larger) Liquid Nitrogen tank with a pressure of 14–22 psig (95–150 kPa gauge)</td>
</tr>
<tr>
<td>LN$_2$ pressure above 30 psig (207 kPa gauge) may cause damage to the Liquid Nitrogen Controller.</td>
</tr>
<tr>
<td>Keep the supply line short and provide adequate insulation to minimize gaseous nitrogen build-up in the supply line. Failure to do so may cause the Liquid Nitrogen Controller to malfunction frequently. Use the 3 ft. hose provided by TA Instruments for this reason.</td>
</tr>
</tbody>
</table>
TCUBE EDGE CIRCULATOR MEASUREMENTS

- **Height:** 28 cm (11 in)
- **Width:** 33 cm (13 in)
- **Depth:** 28 cm (11 in)
- **Weight:** 11.3 kg (25 lbs)

### Requirements

- 100–240 VAC at 50/60 Hz (3.5 A)
- Neutral to ground < 1 volt
- 8.5 A at 100 VAC, 3.5 A at 240 VAC
- Koolance (supplied with TCube)
**Site Preparation Checklist**

**ARES-G2 Rheometer**

<table>
<thead>
<tr>
<th>Area</th>
<th>Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sufficient bench space for instrument, computer, Power Supply Enclosure, and Environmental Supply Enclosure:</strong></td>
<td></td>
</tr>
<tr>
<td>✔️ Length: 2.1 m (7 ft)</td>
<td>✔️ Depth: 76 cm (30 in)</td>
</tr>
<tr>
<td><strong>Instrument power:</strong></td>
<td>✔️ With FCO is 180–264 VAC, 47–63 Hz</td>
</tr>
<tr>
<td>ACS power:</td>
<td>✔️ 207–252 VAC, 50 Hz</td>
</tr>
<tr>
<td>✔️ Computer meets all hardware requirements</td>
<td>✔️ I have two network cards installed on the computer to be able to connect to both the corporate LAN and the instrument.</td>
</tr>
<tr>
<td>✔️ Computer meets all software requirements</td>
<td>✔️ Customer’s IT personnel has provided Administrative privileges on the controller computer</td>
</tr>
<tr>
<td>✔️ The Customer’s IT personnel will be on site the day of installation</td>
<td></td>
</tr>
<tr>
<td><strong>Air Supply:</strong></td>
<td>✔️ Pressure is 100 psig (0.7 MPa)</td>
</tr>
<tr>
<td>✔️ Available flow rate is:</td>
<td>✔️ 9.5 scfm (270 L/min) with FCO</td>
</tr>
<tr>
<td>✔️ Dew point is -10°C or better</td>
<td></td>
</tr>
<tr>
<td><strong>Liquid Nitrogen Controller:</strong></td>
<td>✔️ Customer must provide 160 L (or larger) Liquid Nitrogen tank with a pressure of 14–22 psig (95–150 kPa gauge)</td>
</tr>
<tr>
<td>✔️ The Customer assumes responsibility for any damage that occurs when the instrument is moved by someone other than a trained TA Instruments Service Representative.</td>
<td></td>
</tr>
</tbody>
</table>

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.**

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**Customer**

DD / MM / YYYY

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**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/

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