



P/ACE™ MDQ Pre-Installation Guide

32 Karat Software

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P/ACE™ MDQ Pre-Installation Guide

1.1 Overview

This Pre-Installation Guide will identify the items required for laboratory preparation and the designated operator(s), so that installation can be completed efficiently and the system operated successfully.

Two lists are included:

- Supplies for Installation
- Available Accessories

A pre-installation checklist is included to help you prepare for the installation.

Pre-Installation

2.1 Preparation Check List

The following is a summarized list of the items that must be addressed prior to installation. Mark each item as it is completed. When these prerequisites have been met, contact your local Beckman Coulter representative to schedule the installation.

- Appropriate table or bench ("Tabletop Space" on page 5)
- Suitable power source (Table 1 on page 6)
- Suitable laboratory environment ("P/ACE MDQ System" on page 7)
- Training prerequisites met ("MDQ System Training" on page 13)

Technical Support

If you encounter a problem that is not discussed in this guide and you need technical support, contact your local dealer, the provider of this product, or contact Beckman Coulter directly by using the information below.

NOTE Whenever you call your local dealer or Beckman Coulter, be sure to have your registration material, instrument serial number, and software version number available.

For future reference, record this information here.

Instrument Serial Number:	
Software Version:	
Firmware Version:	
Dealer Name:	
Dealer Phone Number:	
Mail	Beckman Coulter, Inc. 4300 North Harbor Blvd. Fullerton, CA 928340-3100 www.beckmancoulter.com

2.2 Pre-Installation Check List

The following is a list of requirements and items necessary for installation of the P/ACE MDQ. Use this list to check off the requirements and items that you have and other items as you receive them. To ensure a successful installation, please verify that you have these items prior to scheduling the installation with your local office.

P/ACE MDQ

- Power Requirements
- Bench Space
- Installation Test Mix (shipped separately)

Computer

- Beckman Coulter Supplied
or
- Equivalent Computer System
- Windows XP
- 32 Karat Software
- Printer (Optional)
- GPIB Communications Interface Board and Cable

Detectors

- UV Detector (if ordered)
- PDA Detector (if ordered)
- LIF Detector (if ordered)

Options

- Sample Tray Temperature Control
- Ambient Sample Tray
- Filters (spare for each filter)
- Lasers
- Large Volume Buffer Tray
- External Detector Adapter

Site Requirements

3.1 Tabletop Space

The P/ACE MDQ System is comprised of the MDQ unit, and one of the following:

- IBM PC Tower
- Monitor
- Keyboard
- Mouse

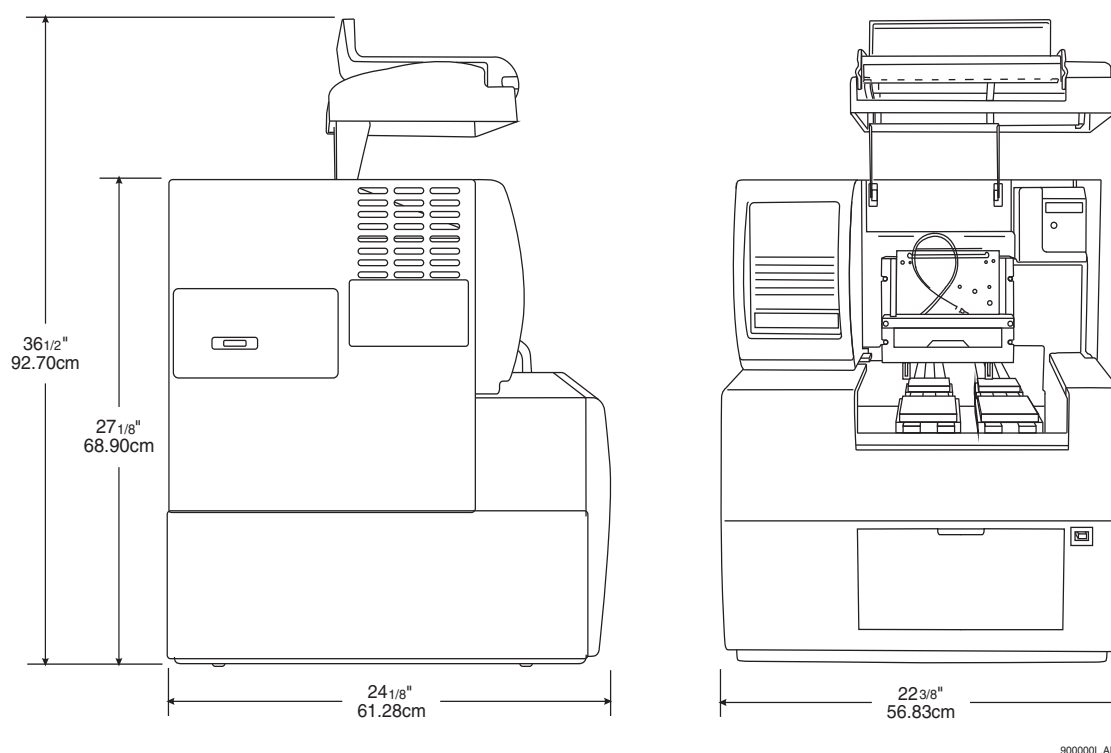


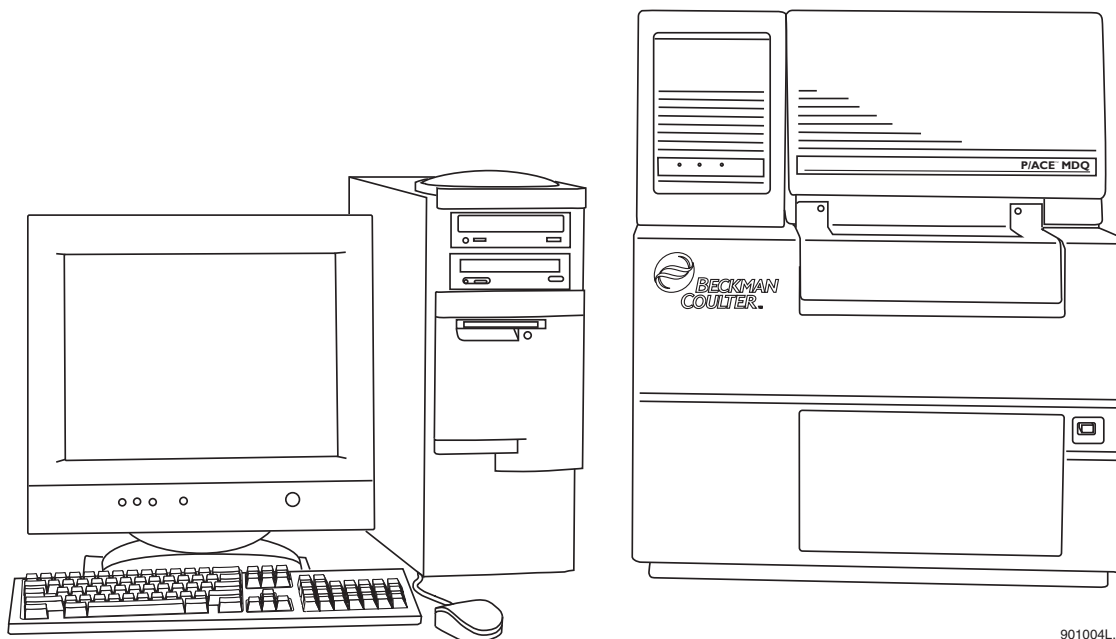
Figure 1 P/ACE MDQ Dimensions

Space Requirements

The instrument dimensions are shown in Figure 1. In addition to space for the instrument itself, allow for an additional space for the computer and printer (if any). Refer to Figure 2 illustrating recommended system setup.

Ventilation Requirements

Adequate space must be provided around instrument for ventilation and access to the communication connections. Allow at least 12 inches on the left side (facing instrument) and at least 4 inches on other sides Refer to Figure 1 for overall instrument dimensions.



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Figure 2 Typical P/ACE MDQ System Setup

Table 1 Site Requirements

Bench Dimensions (Minimum Requirements)	Length: 6-8 feet Width: 3 feet Height: 3 1/2 feet Supportable Weight: 500 - 600 lbs
Environment	Indoor Use Only. Ambient temperature range: 4°C (39°F) to 40° (104°F). 15°C (59°F) to 30°C (86°F) recommended without large temperature fluctuations.
Power Requirements	100-120 or 200-240 VAC, 50-60 Hz, single phase, 130 W (nominal) for each module. Neutral to ground <0.5V

Electrical Requirements

The P/ACE MDQ is provided with a power cord suitable for installation in North America (nominal 120 VAC, 60 Hz). A power cord suitable for non-North America installations will be provided by Beckman Coulter. The instrument requires one grounded electrical outlet.

The power line to the laboratory should connect directly from a main power line transformer at a power source known to be clear of erratic power loads, spikes and electromagnetic interference. Power lines reserved for the instrument must have adequate reserve capacity. Normal loading should not exceed 50% of nominal capacity to allow for start-up loads and the addition of new instruments.

Remember that the personal computer, printer, and accessories require additional AC outlets.

Specifications

4.1 P/ACE MDQ System

Use this information to prepare the environment where the system will be located.

Table 2 System Specifications

Item	Description
Weight (P/ACE MDQ)	132 lbs (60 kg) w/o trays and cooling option 155 lbs (70.5 kg) w/trays and cooling option
Firmware Version	5.0 or Higher
Power Requirements MDQ PC (typical) Monitor (17" typical)	CAUTION The supply voltage must not exceed 10% of nominal. 100-240VAC, 5.0A, 50/60Hz; auto-voltage sensing power supply 6.0A, 50/60Hz 1.8A, 50/60Hz
Fuses (MDQ)	8.0 A Slow Blow; 1/4 inch (2 ea.); 100-120 VAC 6.3 A Time Delay; 20mm (2 ea.); 200-240 VAC
Maximum Heat Dissipation (to room) P/ACE MDQ PC and Monitor	400 W (1024 BTUs/Hour) 936W (3194 BTUs/Hour)
Ambient Operating Temperature Range	15-40°C (15-30°C recommended)
Humidity Restrictions	RH<90% (non-condensing) @ 30°C
Altitude Restrictions	up to 2000m (6,562 ft)
PC (Tower)	Beckman Coulter certified controller
Installation Category	Category II
Pollution Degree	2
Sound Pressure Level	Maximum sound pressure: 70 dB Maximum sound pressure at 1 meter away: 66 dB

Computer Requirements

Table 3 Beckman Coulter Computer Requirements

CPU	IBM M51 Computer with 3.2 GHz processor
Memory	1024 Mb (minimum)
Hard Drive	40 Gb or larger
CD/DVD RW	Required
USB Ports	Required
Monitor/Resolution/Colors	1024 x 768/True Color
Keyboard	101 key
Mouse	Microsoft® compatible
Interface	PCIe Communications Interface Board (provided with software)
Printer	Any Windows XP™ compatible printer
Operating System	Microsoft Windows XP Pro with service pack 2

NOTE These are the specifications that must be met if the customer is providing the Personal Computer. Beckman Coulter provided computers will meet or exceed the above specifications.

IMPORTANT Users must have Administrator or Power user permission on the local workstation.

UV Detector

Specification Type	Description
Wavelength Range	190 to 600 nm
Filter Selection	200, 214, 254 and 280 nm (standard); three open positions for additional wavelength selections; filter diameter ½ inch (127 mm); 0.20 in. thick
UV Source	Deuterium Lamp; 30 W; prealigned
Wavelength Accuracy	2 nm
Analog Output	<p>Output 1 is Data; Full scale output is 1.0 AU/V (software selectable multipliers of 1.0, 0.5, 0.2, 0.05, 0.02 and 0.01 providing lower AU/V values).</p> <p>Output 2 not used.</p> <p>Output 3: Current signal when Voltage is programmed; Voltage signal when either Current or Power is programmed.</p>

PDA Detector

Specification Type	Description
Wavelength Range	190 to 600 nm
Detector	256 Element Diode Array
UV Source	Deuterium Lamp; 30 W; pre-aligned
Wavelength Accuracy	2 nm
Bandwidth	6 nm minimum (Absorbance Averaging)
Analog Output	<p>Output 1 is Data Channel 1 and Output 2 is Data Channel 2; Full scale output is 1.0 AU/V (software selectable multipliers of 1.0, 0.5, 0.2, 0.05, 0.02 and 0.01 providing lower AU/V values)</p> <p>Output 3 is Current signal when Voltage is programmed; Voltage signal when either Current or Power is programmed</p>
Scan Collection Frequency	0.5 to 32 Hz

LIF Detector

Specification Type	Description
Relative Fluorescence Units (RFU) range	0 to 1000 RFU
Dynamic Range (at a dynamic range setting of 1000)	> 10 ⁴
Sensitivity	1 x 10 ⁻¹¹ M Sodium Fluorescein with a signal-to noise ratio ≥ 2
Baseline Noise	<0.005 RFU peak to peak*
Baseline Drift	< 0.2 RFU per hour*
488 nm Laser Module Dimensions	Height: 25.00 in. (63.5 cm) Width: 10.25 in. (26.3 cm) Depth: 14.25 in. (36.0 cm) Weight: 82 lbs. (37.3 kg)
635 nm Laser Module Dimensions	Height: 7.5 in. (19.2 cm) Width: 5.25 in. (13.2 cm) Depth: 7.0 in. (17.7 cm) Weight: 5 lbs. (2.3 kg)
Wavelength Ranges (for optics)	Excitation: 300 to 700 nm Emission: 350 to 750 nm
Filters (optional)	For 488 nm laser: 488 Notch filter and 520 nm Band-pass filter For 675 nm laser: 663 nm Long Pass filter (2 required) For user supplied lasers: Each laser configuration requires two filters, a laser filter to block stray laser light and an emission filter to select the wavelength of the emitted light. These filters must have an outside diameter of 0.500" (+.000, -.010") and a thickness not greater than 0.350"; if multiple filters are used in a single channel, the total thickness cannot exceed 0.350".
Fiber cable length	6 feet (1.83 m)
Software Requirements	32 Karat Software, Version 5.0 or later
Laser (optional)	3 mW 488 nm (air-cooled) Argon Ion Laser 3 mW 635 nm Diode Laser

Analog Outputs	Output 1 is Data Channel 1 and Output 2 is Data Channel 2; Full scale output is 1.0 AU/V (software selectable multipliers of 1.0, 0.5, 0.2, 0.05, 0.02 and 0.01 providing lower AU/V values) Output 3 is Current signal when Voltage is programmed; Voltage signal when either Current or Power is programmed
Power Requirements	100/120V, 12A, 50/60 Hz 220/240V, 6A, 50/60 Hz
Ambient Temperature Operating Range	15 to 40°C
Recommended Best Performance Range	15 to 30°C
Relative Humidity	<95% non-condensing @ 35°C
*These specifications are for a 75 µm I.D. capillary.	

Sample Cooling

Specification Type	Description
Ambient Operating Temp. Range	15°C to 30°C
Humidity	80%
Temperature Range	20°C below ambient to 60°C (minimum setting 4°C)
Temperature Stability	±1°C
Accuracy	Temperature of environment: ±2°C within the range of ±15°C from ambient; ±3°C outside the range of ±15°C for ambient.

MDQ System Training

5.1 Pre-Training Requirements

After the system has been installed, a Beckman Coulter Biomarker Field Engineer will train up to two operators in basic instrument operation.

Successful implementation of the installation is dependent upon the training that is received. To ensure a focused and optimized training session, follow these guidelines:

1. It is important that the operators are available and uninterrupted throughout the initial training period.
2. No more than two operators can be trained on the instrument at any given time.

The system operation requires a basic knowledge of Windows XP. The operator must be familiar with the following terms and skills:

- Use of Add/Remove Programs
- Creating, opening, saving, editing, moving and copying files
- File/Disk Management

Additional Training

Our training program has been designed in phases to allow operators to focus on and master basic operational elements first, through the use of the Basic Training Workbook, and then to build and expand on that fundamental knowledge, through the use of the User's Guide.

User's Guide

The User's Guide includes a series of tutorial exercises designed to reinforce the concepts learned during initial basic training. Each exercise contains detailed solutions, which allows the operator to work at his or her own pace and build confidence concerning instrument functions. This manual also includes principles of operation and component descriptions as an aid in understanding how the instrument functions.

