

Site requirements

Introduction

This document outlines the site requirements for a Zetasizer Nano. Ensure all these are met **before** the Malvern Instruments engineer arrives to install and commission the system.

Environmental conditions

The site must be:

- Away from strong light sources (e.g. windows).
- Away from strong heat sources (e.g. radiators).
- Well ventilated (for noxious samples).
- On a horizontal vibration-free bench built to support the weight of the system (shown below):

Unit	Weight
Zetasizer Nano	21kg
MPT-2 Titrator	5.3kg
Vacuum degasser	2.75kg

Store/operate the system in the following conditions (accurate measurements are sample-dependent, for example dry powders may stick together in high humidity):

IP rating	Designed to meet IP41B
Operational conditions	5°C to 40°C (41°F to 104°F)
Storage conditions	-20°C to 50°C (-4°F to 122°F)
Humidity	Maximum humidity 80% for temperatures up to 31°C, decreasing linearly to 50% relative humidity at 40°C
Usage	Indoor use only
Altitude	Up to 2000m
Mains supply voltage fluctuations	Up to $\pm 10\%$ of nominal voltage
Overvoltage category	II (IEC 60664)
Pollution degree	2 (BS EN 60664-1:2003)
Installation category	II (BS EN 60664-1:2003)

In addition:

- Do not obstruct power sockets as they may need to be disconnected during an emergency.
- Avoid passing electrical cables through areas where liquids can be spilt.

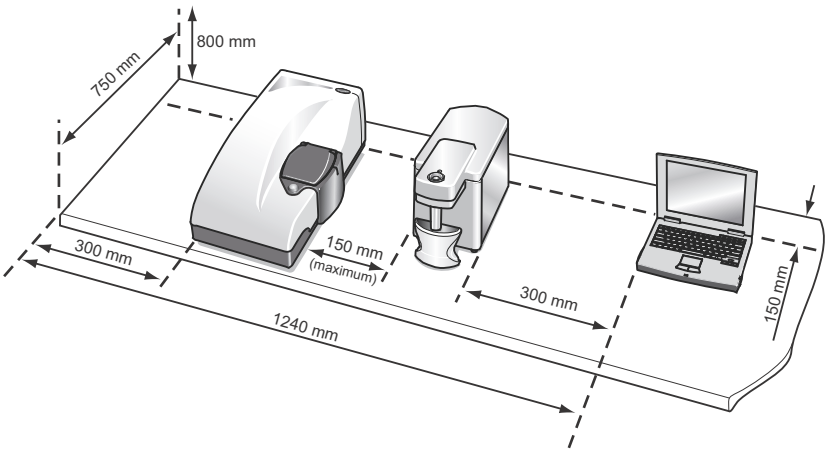
Space required

Provide enough space to allow easy access to all components and connections. Allow at least **800mm** above the bench surface for access to the cell area and accessories.

Component dimensions are: (the width is with the cuvette holder closed):

Component	Width	Depth	Height
Zetasizer Nano	320mm	622mm	260mm
MPT-2 Titrator	170mm	390mm	260mm
Vacuum degasser	75mm	250mm	130mm
Computer and printer	See manufacturer's documentation		

This diagram shows the minimum recommended space required for a typical system using an MPT-2 Titrator, and its computer.



ill 7931

Services

This section describes the services required.

General

The following services are required for each component:

Component	Zetasizer Nano	MPT-2 Titrator	Vacuum degasser
Power sockets	1	1	1

- In addition, the computer system requires one or more power sockets.

Power specification

The mains power supply must be clean and filtered. If necessary, fit an Uninterruptible Power Supply (UPS) to remove any spikes or noise.

The power requirements are:

Unit	Power requirement
Zetasizer Nano	~ 100-240V, 50-60Hz
MPT-2 Titrator	~ 100-240V, 50-60Hz
Vacuum degasser	~ 100-240V, 50-60Hz

**Note**

Only use the PSU/cables provided. Using another PSU voids any warranty and may be unsafe.

Additional services

Laser safety

Zetasizer Nano instruments are Class 1 laser products and as such, require no special laser safety considerations during normal operation. However, during servicing (which must be performed by a qualified Malvern representative), the servicing engineer may be exposed to class 3b, or above, laser radiation. We therefore recommend that the administrative controls recommendations of the Laser Safety Regulations (IEC 60825-1(1993) +A1(1997)+A2(2001) are implemented.

Purge specification

If measuring samples at low temperatures there is a risk of condensation occurring on the cell; this occurs when the measurement temperature is less than the 'dew point' of the ambient air surrounding the cell being measured. This is particularly likely in humid climates.

The purge inlet port can be used to connect a dry air supply to the instrument, i.e. a supply with a dew point below the target temperature. This removes any moisture in the air immediately surrounding the cell and prevents condensation. The air supply must conform to the following specification:

- Compressed air to DIN 8573-1
- Oil = Class 1
- Water = Class 3
- Particulate = Class 3
- Pressure = 100 kPa g

For connection purposes, the purge connection uses an M5 internal thread.

**Caution!**

The purge air line supply must conform to the above specification. Failure to meet this specification may result in permanent damage to the instrument and invalidate the warranty.

MPT-2 Titrator services

Nitrogen purge specification

**Warning!**

A Nitrogen supply must be used in a well ventilated environment.

The MPT-2 Titrator has a purge connector for connection of a Nitrogen purge supply. This can be used to blanket the area directly above the sample and prevent any absorption of Oxygen that may change the pH characteristics of the sample, i.e. cause a pH drift.

If a Nitrogen supply is required it must conform to these specifications:

- The Nitrogen supply must be dry, free from oil and filtered to remove any contaminants that could affect the sample.
- The flow rate should be adjustable between 2 and 20 ml/min.

Computer specification

Contact the Malvern Helpdesk or website for the recommended computer specification. This is also provided in the Software Update Notification.

