



Model EZ9
Vibrating Sample
Magnetometer

Facilities Guide, EZ9 VSM
© 2013 MicroSense, LLC Corporation

All rights reserved. Information in this document is subject to change without notice.
No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without the express written permission of MicroSense, LLC

Model EZ9 VSM Facilities Requirements

Electrical Requirements:

System Input Voltage: Three-Phase, 208 VAC, 40 Amp
(Specify at time of order)

OR

Three-Phase, 380 VAC, 25 Amp

For the Three phase 208V system, the circuit breaker on the system is rated at 35 Amp and will protect the power cable. The above mentioned 40 Amp circuit will prevent nuisance dropouts.

NOTE: The computer and all system options are powered by the base unit at 120V and may NOT be powered from any source outside the system.

Input Connection

The system comes with an approximately 4 meter/13 feet long cable without a plug. This cable can be connected to a knife blade disconnect box or a customer provided plug. Only 4 wires (the 3 phases and the safety ground) are used.

A suitable disconnect device capable of the interruption of the specified system load current must be within easy reach of the system. This device must provide branch circuit protection in accordance with the national Electric Code (NEC) and must satisfy all local regulations. This disconnect device must allow for Lockout and Tagout (LOTO) when the power is disconnected for system service.

Input Voltage for optional Chiller (Specify at time of order): 208 VAC, 60 Hz or 230 VAC, 50 Hz,

Single-Phase, 25 Amp required.

Frequency: 50 or 60 Hz + 5%

(Specify at time of order)

Cooling Requirements (for typical duty cycle use)

Coolant (for Magnet): 2 gallon per minute or 7.6 liter per minute at 18 C, 60 psi, 5 cooling capability.

Note that use of a Chiller (cooling system) is recommended and is offered as an option. Specify at time of order.

DO NOT USE automotive antifreeze, pure distilled water or deionized water as a cooling liquid (may cause corrosion and damage to pump seals, etc.) The cooling liquid should be non-corrosive and free of particles.

For systems which include a customer-supplied chiller, Microsense recommends checking the manufacturers manual for a suggested coolant.

For 100% duty cycle use at full power (for example if the system is used with the optional torque magnetometer) a higher capacity chiller of at least 8 kW is recommended

Operating Environment:

Temperature Range: 15 °C to 25 °C (59 °F to 95 °F)

NOTE: Operating range is typically 18-23° C (65 to 73° F) maintained within ±0.5 °C (± 1 °F) of nominal.

Temperature Gradient: <0.5 ° C/hr (<0.9 ° F/hr), linear change

Relative Humidity: 10-65% Non-condensing

For Optional EZ1-LNA Temperature control system:

Cooling Liquid: Liquid Nitrogen is required for experiments below room temperature.

NOTE: A 25 liter rolling dewar is supplied with the system.

Cooling Gas: 80 psi Nitrogen (N₂) connected to 1/4" tube.

99.95% pure for measurements below room temperature

Heating Gas: 60 psi Argon (Ar) connected to 1/4" tube

Connections: The system is supplied with a single 6 mm = 1/4" OD tube, approximately 4 meter or 13 feet long. The customer is required to provide a method for connecting this tube to the gas source.

Safety notice: When working with cryogenic liquids such as Liquid Nitrogen, appropriate safety precautions are required including the use of insulating gloves and safety glasses. Please consult your local safety guidelines and regulations..

Required Clearance Spaces:

The Model EZ9 will be installed as 2 units:

1. The Measurement Station (includes the magnet/vibrator frame)
2. The Electronics Cabinet

The Measurement Station and Electronics Cabinet should be spaced within 3 feet of each other. They will be connected to each other by cables.

The standard computer is mounted on a flexible arm on the electronics Cabinet unless otherwise specified at the time of order.

There should be enough clearance to allow easy access to the back of the Measurement Station and Electronics Cabinet. Microsense recommends the following:

- Allow enough clearance around the perimeter of the Measurement Station and Electronics Cabinet for a person to comfortably walk around (at least 2 feet, 60 cm).
- Allow enough clearance for the optional dewar (which rolls on caster wheels) to be connected to the Measurement Station with tubing.
- Space may be required for Nitrogen and/or Argon gas tanks if the temperature control option is included on your system.

NOTE: *The Electronics Cabinet may be installed on either side of the Measurement Station.*

Heights:

- The EZ9 Measurement Station stands approximately 85 in. (216 cm) tall.
- The EZ9 Electronics Cabinet stands 68 in. (173 cm) tall.

Estimated Weights:

1)	EZ9 Measurement Station, including crate:	Approximately 1845 lbs. (837 kg)
2)	EZ9 Electronics Cabinet, including crate:	Approximately 785 lbs. (356 kg)
3)	System Accessories, including crate:	Approximately 275 lbs. (125 kg)
4)	Optional Chiller, including crate:	Approximately 245 lbs. (111 kg)

Total Weight with chiller, including crates: Approximately 3150 lbs (1428 kg)

Facility Readiness Checklist:

Below is a list of items to consider or prepare at your facility, ahead of the system installation date:

ASSEMBLY OF THE SYSTEM - ASSEMBLY AREA

A clean and dry assembly area where the equipment can be maneuvered easily is necessary.

LOCATION OF SYSTEM - SPACE REQUIRED Space required for system at estimation site is:

WIDTH: at least 10 feet (305 cm) - 12 feet (368 cm) recommended DEPTH: 6- feet (198 cm)

LOCATION OF SYSTEM - FLOORING

Concrete flooring or concrete/metal pillars capable of bearing at least 2200 lbs. (1000 kg) load is required (+ the weight of the maximum number of operators around the system). The floor should be level and free of vibrations.

AIR VENTS FOR CLIMATE CONTROL, SYSTEM

The system is sensitive to temperature changes and it is strongly recommended to not put the system near or in the direct air stream of a climate control air outlet to avoid signal drift. Additionally, **for systems with the optional Torque Magnetometer**, the direct flow of climate control air will significantly increase the system noise.

FACILITY NETWORK HOOKUP

One hookup (optional). Customer may supply network connection for standard Ethernet 10/100 card (provided with system). The computer also includes a wireless interface.

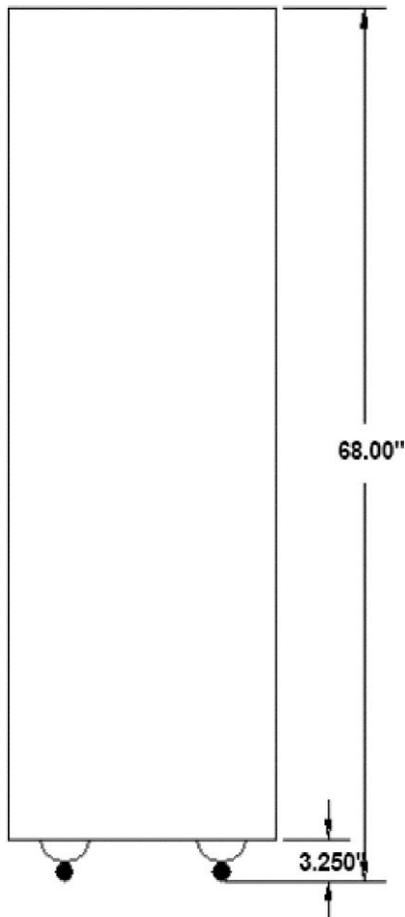
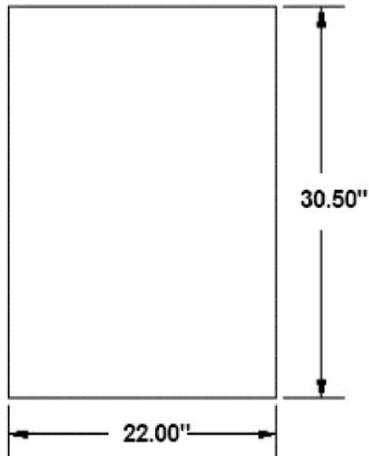
FACILITY TELEPHONE HOOKUP Not required for operation, but very helpful for installation and operational troubleshooting.



36 inch wide and 26 inch deep, approximately 80 inch tall.

Model EZ9 Dimensions - Measurement Station.

Dimensions in Inch. For Dimensions in cm, multiply by 2.54
(Note: Optional chiller unit not shown here)



Model EZ9 Electronics cabinet dimensions

Dimensions in Inch. For Dimensions in cm, multiply by 2.54

Please note that the Computer (mounted on a flexible arm) is not shown here.



A Typical system setup is 100" wide x 85" deep (2.54m x 2.16m), this includes the space for the monitor on the swing arm and some room for the operator to stand in front of the computer. The optional chiller requires a space 19" wide and 45" deep (0.48x 1.14 m).