

AccuSizer® Mini SPOS System

Installation requirements

This technical note is intended to prepare customers for the installation of a new AccuSizer® Mini single particle optical sizing (SPOS) system. The AccuSizer Mini system is an online liquid particle counter and size analyzer. The most common application is to monitor large particle counts (LPCs) in CMP slurries in the semiconductor industry but is also appropriate for many other liquid suspensions/industries. There are several models of the AccuSizer Mini (LE, FX, FX Nano) system, and all consist of a sensor, counter, sampling fluidics, and computer/software. The sensor and dilution fluidics are matched to the specific slurry to be monitored.

The basic installation steps are the same for all models:

- Mount the system close to the sampling location
- Pull a side stream of the sample
- Connect the sample line to the sample in port
- Connect filtered deionized (DI) water
- Connect clean, dry compressed air
- Connect a drain line
- Connect an RS-232 digital communications cable

The physical dimensions of the system are shown in Figure 1. The utility requirements for the installation are shown in Table 1. An example of a T to pull a sample side stream is shown in Figure 2. The sample, DI water, air, and drain line connections are shown in Figure 3.



Online liquid particle counter and size analyzer.

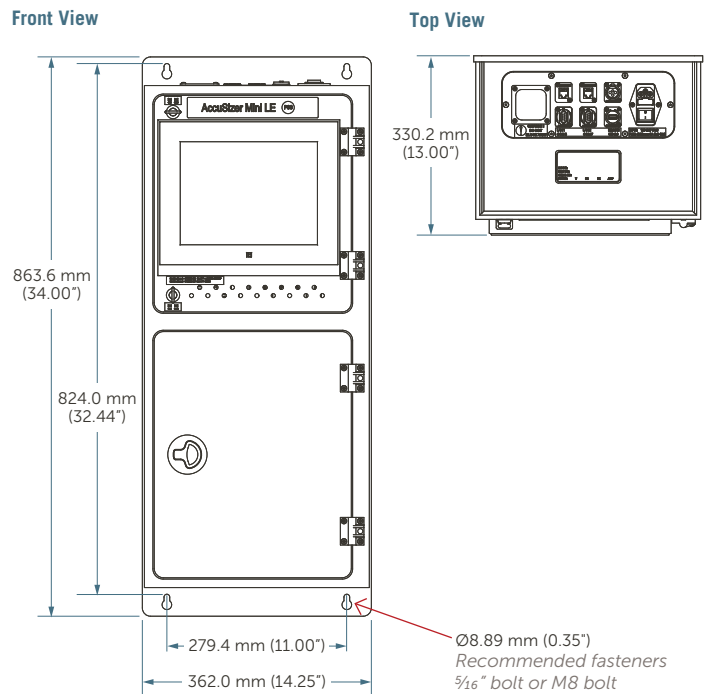


Figure 1. Physical dimensions.

Table 1. Installation Utilities for AccuSizer Mini System

Power	3 prong power receptacle (IEC C14 socket)	100 – 240 V; 5 amps max power
Compressed air or gas	1/4" push on	3.5 – 5.6 kg/cm ² ; 50 – 80 psi
Water	1/4" flare	1.8 – 2.5 kg/cm ² ; 25 – 30 psi
Sample	1/4" flare	0.2 – 2.1 kg/cm ² ; 3 – 30 psi
Drain	1/4" flare	zero pressure drain
Serial port (for ASCII serial output)	RS232	
Remote start		contact closure

All fluid and gas tubes are passed through on bottom of system (connections are internal).
All electrical (including power) are made on top panel. See Figure 1.

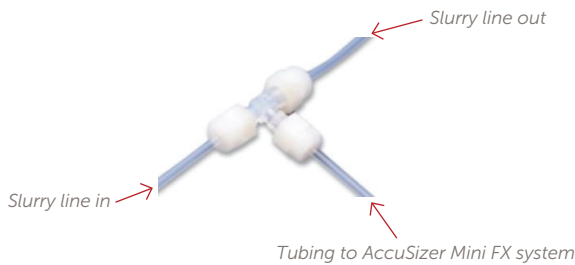


Figure 2. Sample T.

The sample should be brought to the AccuSizer Mini system through 1/4" tubing. The sample port should be as close to the AccuSizer Mini instrument as possible, preferably within 3 meters (9.8').



Figure 3. Fluidics lines.

SLURRY DELIVERY SYSTEM INTEGRATION

Most AccuSizer Mini systems are placed within the CMP slurry delivery system (SDS) for a fab. The location of the sample point is typically chosen by engineering from the SDS company, often downstream of mixing/filtration. Integration of the Mini system into the SDS is the responsibility of the SDS company.

INSTALLATION RESPONSIBILITIES

The end user is responsible for the following:

- Mounting the AccuSizer Mini system
- Providing power (120 or 240V)
- Creating 1/4" or 1/8" flare sample line
- Providing 1/4" flare DI water line
- Providing 1/4" push on compressed air line
- Providing RS-232 cable and connection
- Providing drain for waste sample

Entegris is responsible for the following:

- Connecting the sample line
- Connecting DI water and air lines
- Connecting drain line
- Testing sensor calibration
- Testing leak detector
- Testing remote start
- Initializing measurements, see note below
- Training end user

Note: The sample measurement protocol must be determined prior to installation. These protocols are unique to each slurry. Measurement protocols can be slightly modified onsite to optimize results but attempting to install an AccuSizer Mini system to an unknown sample line is a recipe for probable failure.

Once the Mini system is installed and data has started being collected, the Entegris engineer will typically review data for at least one day to assure quality results. Ongoing data review is suggested.

MAINTENANCE

The AccuSizer Mini system is a robust instrument and can operate unattended for long periods of time. The sensor voltages should be monitored continuously to assure clean cell windows. The sensor is cleaned after every measurement, but occasionally the sensor will require additional cleaning including:

- Flushing the sensor (automated)
- Manual cleaning

The sensor calibration curve should be tested annually or after major service repairs. It is possible to test the calibration curve for any Mini/sensor combination but only the LE400 sensor can be recalibrated in the field. The FX and FX Nano sensors can only be recalibrated at the Goleta, CA factory.

ONGOING SERVICE

Entegris offers both on-demand service and annual service contracts (recommended). Please inquire with your local Entegris office for service options.

FOR MORE INFORMATION

Please call your Regional Customer Service Center today to learn what Entegris can do for you. Visit entegris.com and select the [Contact Us](#) link to find the customer service center nearest you.

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