

## NanoSight – Malvern Panalytical

NS300, LM10

### INTRODUCTION

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The Lumetics LINK™ software platform scans network locations for new measurement data files, copies data directly to a centralized database, and provides a powerful user interface for rapid multi-measurement multi-technique data aggregation, visualization, analysis, and reporting. LINK employs a client/server-based architecture where the LINK server hardware is provided by the end user and resides on the end user's network. The LINK client is a portable web-based application that may be placed on any computer with network connectivity to the LINK server. For successful import, the LINK webserver requires read access to the folders where user data resides.

NanoSight instruments utilize Nanoparticle Tracking Analysis (NTA) to characterize nanoparticles in solution. They provide high resolution nanoparticle size, count-based concentration and aggregation measurements while a fluorescence mode provides specific results for suitably labelled particles. With real time monitoring, subtle changes in the characteristics of particle populations are provided with all of these analyses confirmed by visual validation.

### DETAILS

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LINK requires the Batch/Experiment Summary.CSV data file. The \*.CAP used in older versions of NTA software (might contain sample name and analysis date) is optional. The Particle Count/Intensity CSV data file is optional. The AVI video file is not utilized. The NTA software generates all required files automatically. The NTA software generates all required files automatically however it is advised to export files as Individual vs. Summary, to avoid potential issues related to inconsistent bin spacing.

The following raw curve data may be imported, in addition to all available instrument/analysis settings and parameters calculated by the instrument software:

- Particle Count/Concentration vs. Particle Size
- Particle Count vs. Normalized Intensity, Take Length, Start Frame, or Diffusion Coefficient

Particle Concentration data **MUST** be present in the CSV file for successful Import. If the same measurement exists in the Summary CSV and ExperimentSummary CSV files, LINK will ignore the redundant data. Each measurement in an ExperimentSummary CSV file is treated as a unique measurement. Each will be assigned the same Sample Name but will have a different File Name based on the Capture timestamp.

Import Method options can be defined and calculated each measurement during import if it is first created/defined and then requested within an Import Method. More information and instructions can be found in the Users Manual located in the software help menu (section 4.13). The following is the default FlowCAM-specific import method settings:

- Default Sub-Populations: **None**
- Custom Particle Parameters: **None**
- Automated Metadata Extraction: **None**
- Dilution Factor: **1 (no dilution)**

### Subpopulations

In addition to the total particle population data set, sub-populations based morphological parameter filters may be generated at the point of measurement import. An unlimited number of sub-populations may be specified for each measurement. For each sub-population, the particle count/concentration vs. morphological parameter will be available, as well as



representative particle thumbnail images. The sub-populations do not count towards the measurement limit per project. Additional Sub-Populations will affect import speeds.

When creating as sub-population, select a Morphological Parameter from the pre-defined list and specify the filter criteria. Select the + to add the filter term to the Live Expression View. The Live Expression View can be edited directly. Brackets, mathematical operators/values, logical ANDs or ORs are valid operators. Syntax must be exact, for successful application.

### Custom Particle Parameters

Select from the available user-defined Custom Particle Parameters, those that shall be calculated for each individual particle within each measurement. This selection applies to the total particle population and all defined sub-populations.

### Automated Metadata Extraction

Specify criteria for automated metadata extraction from measurement file fields (e.g. Comments, File Name, Import Path etc...) utilizing specified delimiters. Both metadata name and value may be extracted or only the value only.

### Dilution Factor

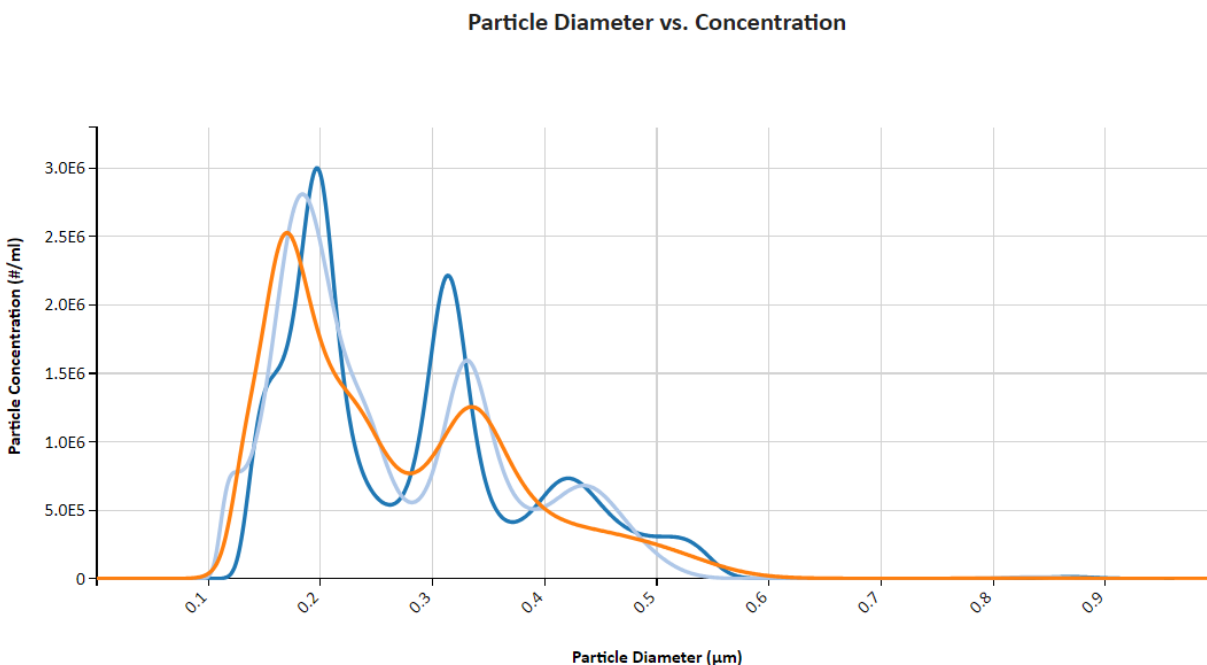
Specify a dilution factor for automated particle count/concentration data adjustment. This selection applies to the total particle population and all defined sub-populations. A LNK\_Dilution\_Factor may also be applied after import, utilizing the Add/Edit LINKdb Fields feature.

## EXAMPLES

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Included below is an example dashboard from NanoSight measurement files:

### 1. Line chart plotting raw data curves for Particle Parameters



## 2. Tabular Summary examples

### Measurement Summary Table – Instrument Settings

LINK Record ID #	InstrumentName	Sub-Population	Sample Name	Blur Size	Weighting	Version	Total frames analysed - AVG	Total Frames - AVG
58	NanoSight	Total Population	Sample 1	Auto	Number	NTA 3.2 Dev Bui...	749	1500
59	NanoSight	Total Population	Sample 2	Auto	Number	NTA 3.2 Dev Bui...	749	900
60	NanoSight	Total Population	Sample 3	Auto	Number	NTA 3.2 Dev Bui...	749	1000
66	NanoSight	Total Population	Sample 4	Auto	Number	NTA 2.3 build 0...	749	1499

### Measurement Summary Table – Measurement Results

LINK Record ID #	Sample Name	Vibration detected	Viscosity (cP) - AVG	Volume (%) (Particle Diam. (µm) <=1) - AVG	Particle Conc. (#/ml) (Particle Diam. (µm) <1) - AVG
58	Sample 1	No	0.88	100.00	1268142878
59	Sample 2	No	0.88	100.00	1437700967
60	Sample 3	No	0.88	100.00	1439394116
66	Sample 4	No vibration detected	0.87	100.00	196717900

### DASHBOARD DOWNLOADS

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Included below are the links to downloadable dashboards for NanoSight measurement files:

<http://lumetics.com/dashboards/NanoSight/NanoSight.zip>

### CONTACT LUMETICS

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For direct assistance, please contact Lumetics LINK™ Support:

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**Phone:** 1.613.614.874

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