

TSI Link™ Report Creator – Basic Analytics Correlation Report



Worksheet Guide (US)

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Overview

The Correlation Report is part of the Basic Analytics workbook for TSI Link™ Report Creator. It analyzes relationships between measured environmental data and other quantitative parameters of interest. Environmental data measurements are imported directly from TSI® instruments. Quantitative parameters of interest can be any numerical measure that is manually entered into the worksheets.

With correlations, quantitative parameters generally fall into two classes.

1. **Independent Parameter that might impact one or more dependent environmental measurements.**

Examples include:

Independent Parameter	Dependent Measurement(s)
Air Change Rate (ACH)	PM 2.5, CO ₂ , VOC, ...
Number of occupants in a room	CO ₂
Outdoor ozone level	Indoor ozone level
Manufactured Product throughput	VOC, Formaldehyde, ...

2. **Dependent Parameter that might be impacted by the surrounding environment.** Examples include:

Independent Measurement(s)	Dependent Parameter
CO ₂	Student test scores
RH, Particle Count	Product defect rates
VOC, CO ₂ , RH, Formaldehyde, ...	Number of occupant health complaints
Noise Level	Customer survey ratings

This Report Creator Correlation Report Worksheet supports analyses with both types of parameters.

The correlation analysis report can help you with a wide range of problem investigations and improvement programs. These worksheets substantially automate the correlation process helping to ensure accurate analysis and allowing you to focus on the analysis.

A correlation may offer a strong clue of causality. But keep in mind that sometimes another independent variable may be influencing both the environmental data and your measured parameter. They may then strongly correlate, but not have a causal relationship.

Check out the [Report Creator Product Page](#) for the full list of guides and videos including: setting up an account, installing the application, using the study manager, using the layout view, customizing report creator templates, etc. This guide builds upon those guides, it not duplicate all of the content.

Workbook Templates

The table below lists the worksheets available in the Correlation Analysis workbook.

Worksheet Template	Supported Measurements	Supported Instruments	Examples of Applications
Configurable Report	The Configurable Report workbook allows you to select up to 3 measurements in a study from a large list of more than 65. This configuration is made at the bottom of the Cover worksheet. See the Configurable Report section for more detail.	OmniTrak™ Solution DustTrak™ Monitors Q-Trak™ XP Monitor Casella™ 620 SidePak™ AM520 Monitor AeroTrak+ A100 Counter	How noise or Air Quality varies with attendance. Impact of HVAC settings on noise and air quality.

Worksheet Operation

The worksheet templates in this workbook have a similar structure. This section outlines the basic operating steps for all of them.

Step 1 Select the Correlation Report Worksheet

This worksheet is one of many worksheets available via the Basic Analytics workbook. At a higher level, an overview of the workbooks available is on the Report Creator product page.

Step 2 Cover Sheet

This workbook contains a very simple Cover sheet that can be customized to suit your needs. See the *Customizing Report Creator Templates to learn how*. Other sheets can be added to your workbook, if desired.

Analytical Analysis Report			
Client			
Project			
Location			
Author			

Step 3 Enter Demographic Information, Study Names, Variables and Select Parameters

After you have created a blank worksheet:

- Enter whatever demographic information you want into your report header.
- Enter the names of studies or locations.
- Add is the quantitative variable you want to analyze, the data in the second column of the table. In the example below, the user wishes to assess air quality impact as the air exchange rate is varied.
- Select between one and three parameters to analyze, before importing any measurement data. The Parameter row is colored red to remind you of this.

Correlation Report

Choose the Parameters to be analyzed, as a reminder the Parameter row will be red until one is chosen

Parameters	None	None	None
Demographic Information	Location	Conditions	Date:
	Comments:		

Demographic Information

None

PM 1.0 (ug/m3)

PM 2.5 (ug/m3)

PM RESP (ug/m3)

PM 10 (ug/m3)

PM Total (ug/m3)

PM 1.0 (mg/m3)

PM 2.5 (mg/m3)

Correlation Data

Enter Study Names or Locations

Enter Quantitative Variable to Analyze

Study	Variable	Max None	Avg None	Max None	Avg None	Max None	Avg
Study 1		0.		0.		-	
Study 2		0.		0.		-	

Step 4 Import Study Data

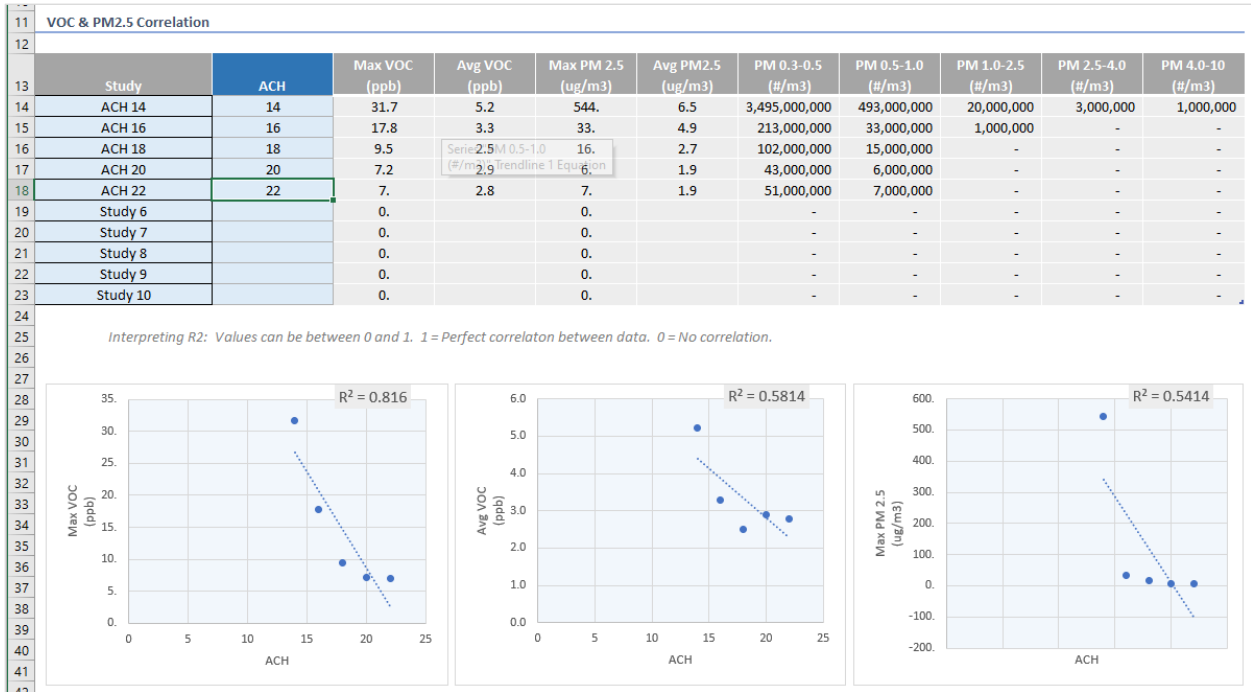
Import the environmental data using [Study Manager](#) or *File Import*. Make sure the study names match the labels you added above. Swap them if necessary. When ready, click **Add Data** to import data into the worksheet. When the device measurement data files are loaded – typically via the – a basic statistical summary table is populated. In the example, the maximum, average, and minimum values for PM number concentration are displayed. Many dependent external variables such as test scores or complaints would be manually entered or copied over.

Step 5 Analyze Data

The **Test Results** section includes a data summary table that calculates the key statistics. A correlation chart is also created for each statistic.

In the example below, the user sees that air quality significantly improves as the ACH is increased to around 16. But beyond that, only marginal improvements are observed. The user might conclude that the optimal ACH balance for air quality and energy efficiency is 16. If additional IAQ improvement is required, another mitigation such as supplemental filtration may be the best approach.

[The Layout View](#) provides the ability to compare both studies spatially. Metrics can be shown on a photo, diagram, map, or any image. This may compliment a correlation analysis.

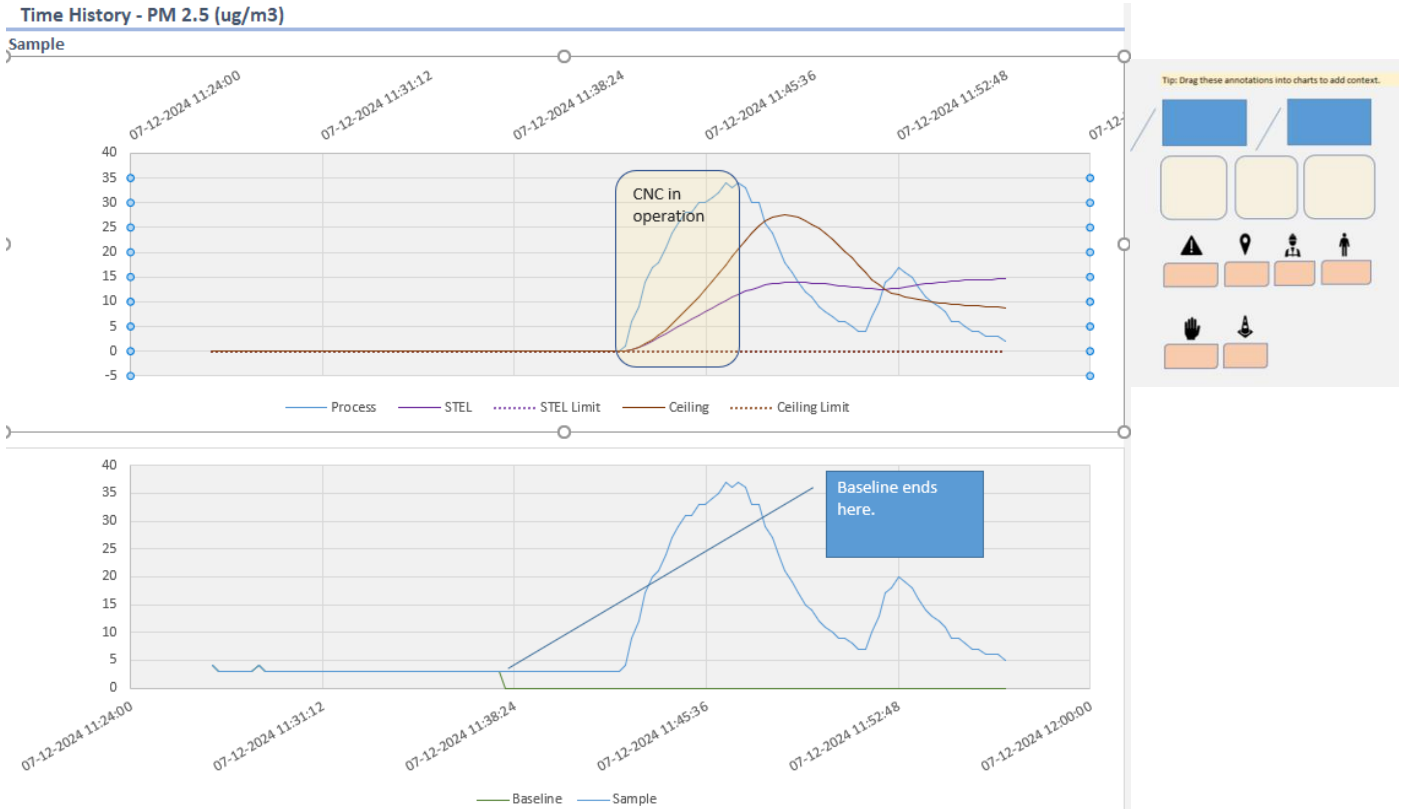


Annotation Tools

Many of the worksheet templates in this workbook contain a set of useful annotations outside of the printable range of the report.

These annotations can be simply dragged into the report. You can type information into the text boxes and position the line markers where you like.

These annotations can also add context to layout view measurements. Again, drag the annotation into the picture. The text boxes can re-sized as necessary. Symbols can be rotated, resized, or re-colored as desired.



Step 6 Complete the Assessment

To complete the report, you can add recommendations under the **Conclusions** section.

The print layout for this sheet does not include the measurement data in the blue tables at the bottom of the sheet. They will not appear in a PDF export either.



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