

Accounting for printer scaling when using PhotoModeler Letter Sheets

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Who is this for?

If you are using the PhotoModeler Letter Sheet target system and you are **printing your own targets**, this document may help. This is especially important if you are measuring larger objects and require high accuracy. This document discusses scale – that is, the size of the Letter Sheets and the relationship to PhotoModeler’s final project dimensions.

Printing Letter Sheets

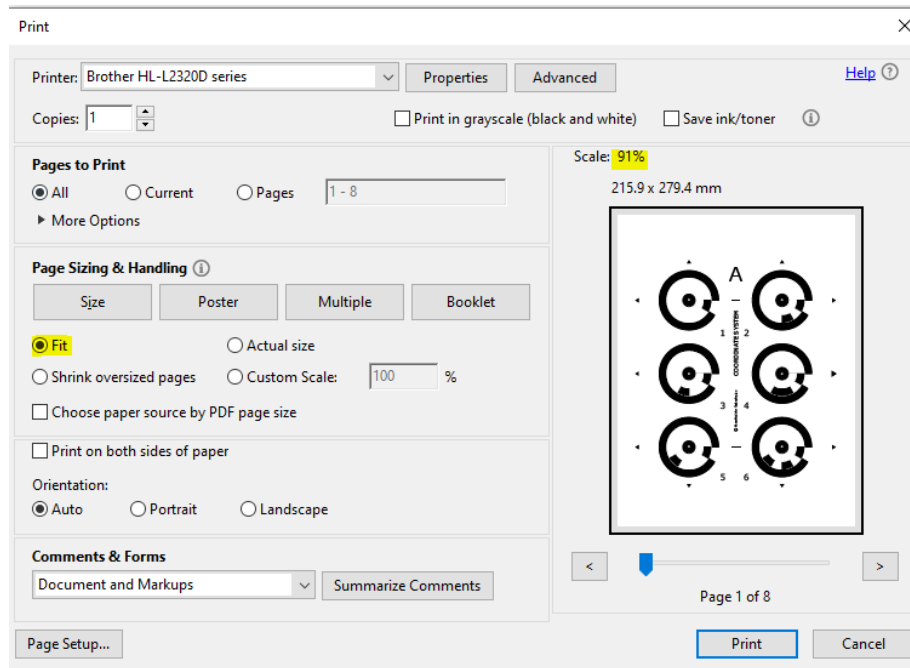
When printing the Letter Sheets from the supplied PDF files it is important to use the ‘Actual size’, or ‘100% print scaling’ and not ‘fit’ or ‘shrink’ settings of Adobe Acrobat. As well, if you have a double-sided printer, print the sheets single sided. The Letter Sheets (with 6 targets each) stay together as one sheet, and the individual target files can be isolated by cutting. See additional detail below.

What are Letter Sheet scales?

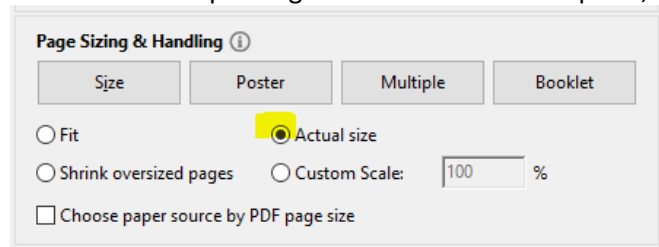
PhotoModeler uses the distance between the dots on the Letter Sheets to determine the real-world size of all objects traced. The default Coded Target Presets define scales based on a PhotoModeler standard. If the printed physical targets do not match this expected standard size, the project and traced outlines will also be off by the same proportion.

Why are the printed targets a different spacing?

Each printer will have slightly different scaling. This is due to things like the available print area, paper size, and mechanical accuracy, etc. The most common reason for a different target size is using a ‘fit’ or ‘shrink’ option when printing. For example, the settings shown below will mean a 9% difference between the expected size and what is printed:



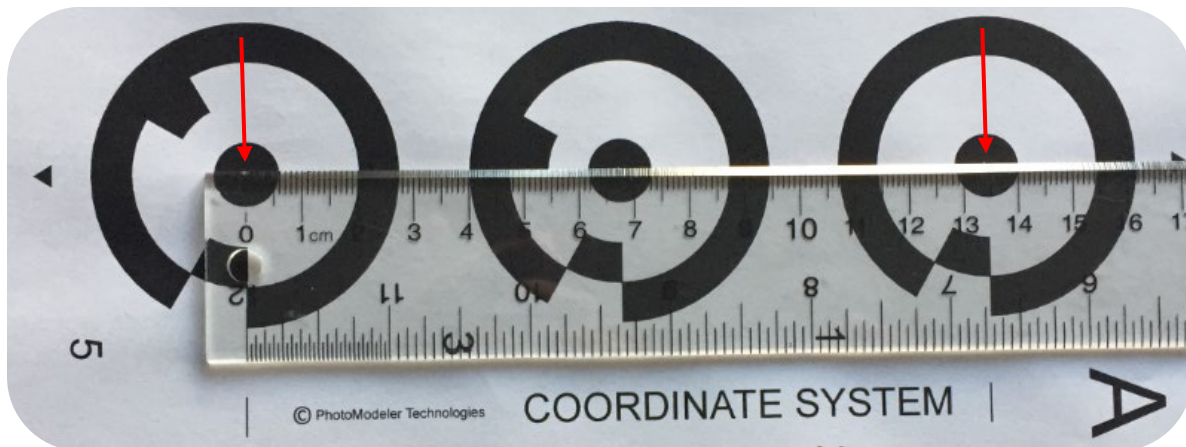
If your printer setup is sufficient to allow printing with the 'Actual size' option, this is recommended.



Do note that even with Actual size or 100% print scaling, there can still be a difference in scale on the printed sheet vs the PhotoModeler default standard.

How to check the physical printed targets:

You can verify the distance between targets using an accurate ruler with millimeter or 1/32nd inch spacing. Carefully measure the distance between center of the dots for targets 1 and 5 on sheet A. Then verify you get the same distance for similar targets on other sheets. (e.g. Targets 7 to 11 on sheet B)



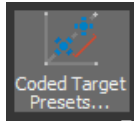
What is the impact of the scale accuracy?

Do you need to be careful when measuring these distances? Yes. For example, if your measurement between the two targets was 140.0 mm, but it was not taken carefully and the true distance was 141.4 mm, this would be about a 1% error. This error percentage would be reflected across the whole project. So, if your project was 4 meters across, a 1% error means you could see errors of 4 cm! It is important that the scale measurement is taken as accurately as possible.

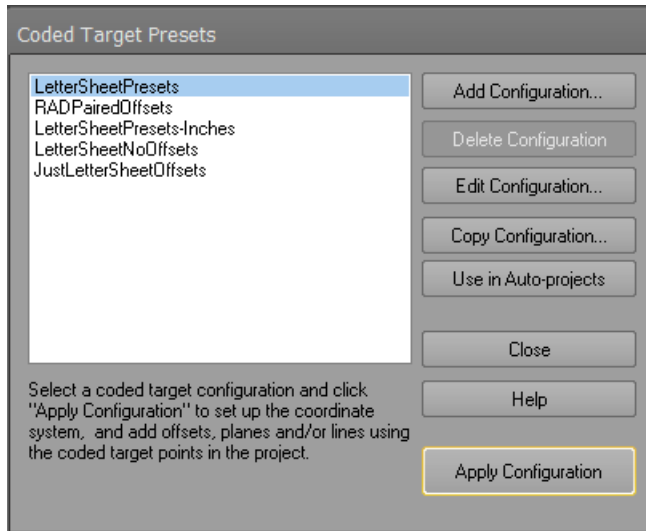
One way to help achieve higher accuracy than you can normally get by using a ruler, is to use longer measurements. Use these as new scales and have PhotoModeler measure the distance between your Letter Sheet points. Contact support@photomodeler.com for more information on how to do this.

How to update your Letter Sheet preset:

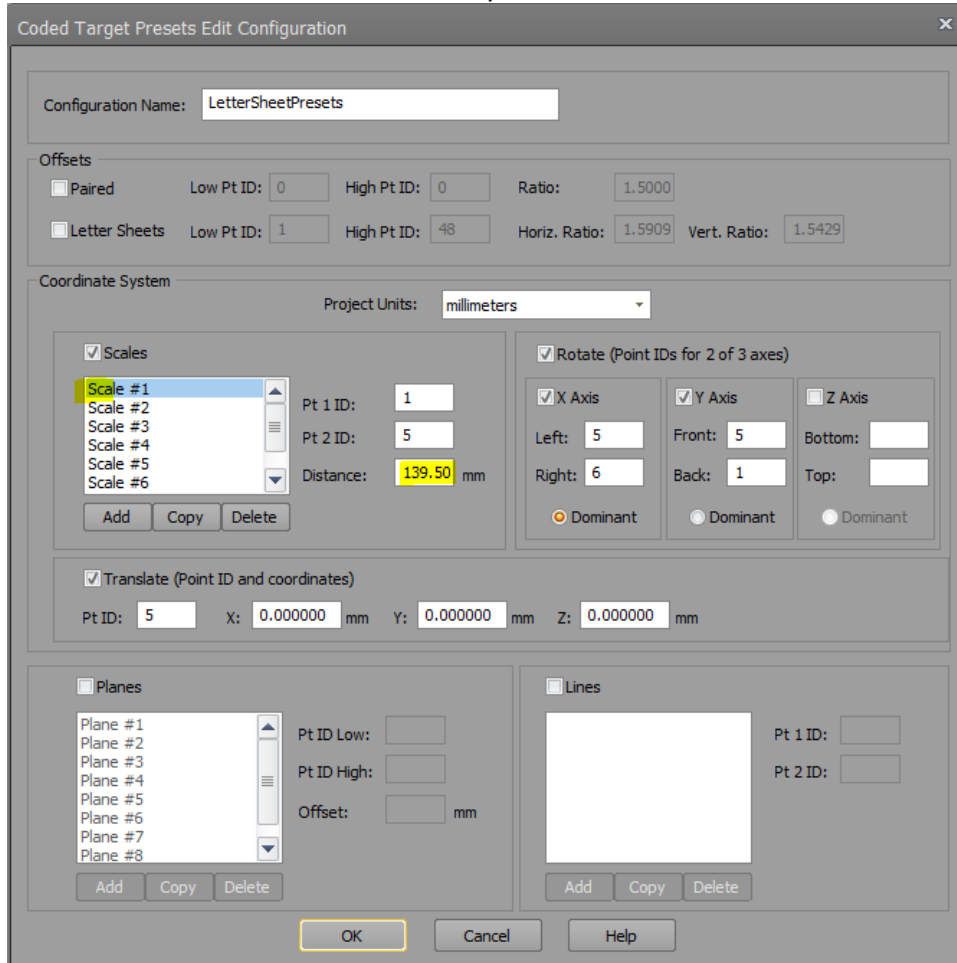
The Coded Target Preset system can be used to automatically set up scales for your projects. You will want to check the measurements you made above match the Preset you are applying. You can update the Preset by editing the installed one or creating a new one.



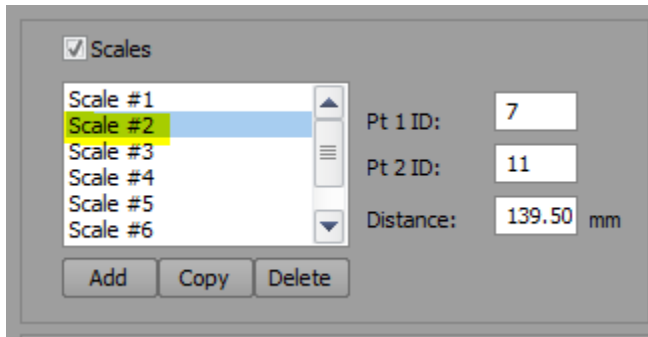
Open the Code Target Presets dialog



Select each scale and enter the value of your measurement in the distance field:



For scale 2:



Repeat for all scales.

More information on presets can be found here:

<https://www.photomodeler.com/photomodelers-coded-target-presets/>

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