



Technical Note: 10000313

Direct Mass Readout on a TM-400

Issue

How to set the TM-400 to display mass rather than thickness.

Solution

Normally the TM displays thickness in kilo angstroms in the format X.XXX, where the least significant digit represents 1 angstrom. To have it displays mass instead of thickness, the Density Parameter needs to be set to 1. This effectively removes the density from the equation.

With the density set to 1, at a tooling factor of 100%, the last digit represents $10\text{ng}/\text{cm}^2$.

Increasing the tooling factor to 1000% would lower the scale by a factor of 0.1. So 1 angstrom on the thickness display now represents $1\text{ ng}/\text{cm}^2$, which is the best mass resolution that can be displayed. If this is not enough resolution for your application, you would have to get it through the communication port. This allows you to get mass measurement resolution of $0.375\text{ ng}/\text{cm}^2$ with a TM-400.

It's important to remember the fact that density value and the tooling factor are inversely proportional. In effect, any of the following combination of density and tooling factor, respectively, would result in a $1\text{ ng}/\text{cm}^2$ mass resolution.

1 and 1000%
10 and 100%
100 and 10%

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