



THERMAL APPLICATIONS NOTE

Common PID Settings

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The Proportional band-Integral-Derivative (PID) heater control method segment on the Q Series™ thermal analysis modules is a powerful tool to obtain the optimum heater control under nontraditional conditions. But the optimum PID values differ widely depending upon the conditions desired and may involve a wide-ranging search for the best values. As an aid to your search, a few PID values determined to be near optimum for the conditions listed are tabulated below. You may have to slightly vary the values for your particular apparatus and condition, but the values listed here will give you a reasonable place to start.

If you develop additional values, we would like to add them to the table. Please contact the author at rblaine@tainst.com with your suggestions.

REFERENCES

1. B. B. Crowe, "Using the Heater PID Method Segment", TA Instruments Thermal Applications Note TN 47.

KEYWORDS

differential scanning calorimetry, thermogravimetric analysis

OPTIMUM PID SETTINGS

Module	Conditions	P	I	D
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DSC	Default	60	135	2.0
DSC	Heating Rates ≥ 100 °C/min	40	0.0	4.0
DSC	Isothermal Step to 200 °C	30	0.0	4.0
DSC	High Cooling Rates to 20 °C with LNCS	40	0.0	6.0
DSC	High Cooling Rates to 160 °C with LNCS	30	0.0	5.0
TGA	Default with HiRes™ Furnace	3.3	2	1.3
TGA	Default with EGA Furnace	2.0	0.7	2.0
TGA	Isothermal Step with HiRes™ Furnace	7.0	0.0	4.8
TMA	Default	33	27	12
TMA	Default with MCA	33	81	12
DMA	Default	10	10	5.0
DMA	Default with Fluid Clamps	10	5.0	20

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