Thermal Controllers Registered in Vision

The following tables lists the thermal controller that are listed in the Set Temperature Task (also Read Temperature, Chamber, Imprint). The controllers are listed in the order that they appear in the Task configuration dialogs. The order cannot presently be changed in the Task configuration, nor can controllers be simply removed.

Controller	Technology	Confidence	Discussion
Delta 9010	1	High	The more-common of the two common Delta controllers. The other is 9015. No ramp rate adjustment is available. All recent Delta chambers sold through RTI have this controller.
Sigma	1	High	This control is only validated for the C3 and C4 controllers. More-recent controllers may or may not work. (They may not even offer GPIB control.) Ramp control is available
NT-1700/2000	3	Low	This was a very common Japanese controller. The driver for this control is coded by copying from the Pascal code written for the RT66A/RT600 It has never been validated in Vision. I believe that these are the same controllers as the REX-FXXX, discussed below. Ramping is not available.
Sun	3	Low	This is a very old controller written for a single customer over fourteen years ago. Ift may work, but if so can only be guaranteed for one model of the SUN hot chuck. The model is unknown. Ramping is not available.
MDC	3	Low	This is a very old controller written for a single customer. It may work, but if so can only be guaranteed for one model of the MDC hot chuck. The model is unknown. Ramping is not available.
Signatone	3	Low	This code was copied from the original Pascal code written for the RT66A and RT6000. It has never been tested in Vision. It was written only for the S-1060 controller. Radiant owns this controller. If needed this driver can be validated and debugged for this model controller only. Ramping is not available.
Linkam TMS94/TMS95	3	High	There are several working installations of this controller in China. However, every installation has had trouble getting the device working. I believe this is normally related to getting the RS232 communications working. The problems have been resolved in every case. Ramping is available.
Instec STC200	3, with 1 optional	Medium	Medium confidence is higher with the GPIB option. Ramping is available.
Eurotherm	3	Low	This is a MODBUS controller. MODBUS is common to several controllers, but it is not clear to me that this factory bus communication protocol includes a common command set. This is difficult to code and difficult to validate. This driver probably works, but can only be guaranteed for the model 2404 and 2408 controllers. I believe that the communication is RS485. Ramping is

			available. Per the single customer's request, an interface is available to allow PID parameters to be set by the user. Yikes.
Delta 9015	1	High	This is the rarer of the Delta thermal controllers. The other is the Delta 9010. I am currently immersed in the development of this controller, although we have offered it for a long time. The problem requiring further development may be that there are at least two, very distinct, versions of firmware. This project is also attempting to add ramping to the control
Blue-M	3	Low	This was RS485 control of a single Blue-M model. I don't recall the model. The current distribution of the Fisher furnace uses a Blue-M controller (below). Ramping is not available.
Rex-F400/700/900	3	Medium	I believe that this is the current designation for the old NTC-1700/2000 controller. These controllers have been made to work.
ESPEC	Unknown	Low	I do not know what model was programmed or what technology was used to communicate. Ramping is not available.
MMR K20	1	Medium	Programmed for a single customer. Ramping is not available
Quatum 6000 (GPIB)	1	High	Ramping is available. Older Quantum models use this reliable GPIB interface. Communication with newer models, with no GPIB interface, are awaiting customer evaluation.
Lakeshore 340	1	High	Ramping is available.
Oxford ITC503	1	Medium	Ramping is not available.
Omega CN016	2	High	RS232 and RS485 models are available.
Lakeshore 330	1	High	Ramping is available
Lakeshore 335 (Serial)	4	Low	Modest attempts to do USB serial control have failed, if memory serves. Use the GPIB interface, offered as a separated selection, below. Ramping is available.
Lakeshore 331	1	High	Ramping is Available.
Lakeshore 336	1	High	I have recently validate GPIB control with an instrument in my possession. Ramping is available
Lindberg/Blue M UP150	2	High	Confidence is High only if the instrument is completely configured and validated, here, with cabling that is being provided to the customer. Note that power cabling is not provided to the customer. Ramping is available.
Lakeshore 335 (GPIB)	1	High	This is there recommended selection for the 335. A USB Serial option is available but could not be validated. Ramping is available.
RTI HVDM II	5	Very High	Our own in-house unit. There is always an instrument available for validation and development. Ramping is not available but is intended for future updates.
Delta 9388	1	None	This is an ancient Delta GPIB-to-serial converter that does not sufficiently meet modern IEEE 488.2 standards to allow Vision to communicate with it. This label in the list will eventually be overwritten by the next thermal controller to come along.
Quantum PPMS/Dynacool (No GPIB)	6	Unknown	This is offered as a separate, unique Task. The Task is under development and awaiting customer evaluation. Ramping and magnetic field ramping are incorporated.

Technologies:

1. Direct-to-GPIB: Requires National Instrument GPIB Interface and NI-488.2 drivers on the Vision host computer. NI GPIB-USB-HS+ interface is recommended
2. Direct-to-Serial: Requires a low-cost USB-to-Serial cable on the host computer. Some devices are RS232 and some are RS485.
3. GPIB-to-Serial: Requires National Instruments GPIB Interface and NI-488.2 drivers on the Vision host computer. Requires a GPIB-to-Serial converter. The some devices require an RS232 converter and some devices are RS485. NI GPIB-USB-HS+ interface is recommended. A National Instruments GPIB-to-Serial converter is recommended
4. Direct-to-USB: The thermal controller has a USB input that makes the instrument appear to have a standard RS232 configuration.
5. Direct-to-USB: The device provides an API to allow direct software communication through the USB.
6. Script File: Vision writes and reads to and from a script that the controller reads from and writes to.