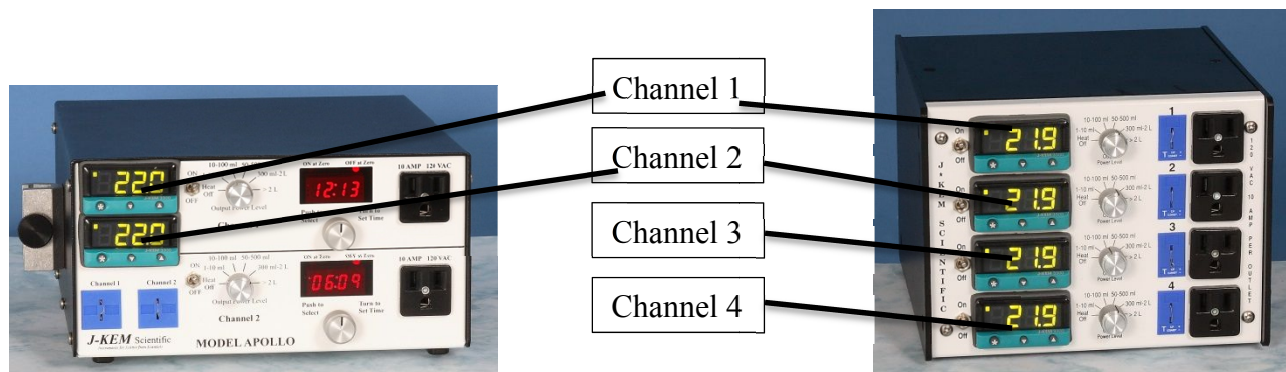


## ASCII Parameters and Protocol for User Written Code.

The USB board on your J-KEM temperature controller or vacuum regulator implements a simple ASCII interface for users who would like to communicate with the meter using an in-house application or third party software like LabView. During normal installation, two drivers are loaded for the controller, one is for USB communications, which KEM-Net uses, and the second is a virtual COMM port driver that can be used with this ASCII protocol. Your application must open the virtual comm port created when the controller is plugged into the PC.

For single channel controllers, like a Model 210 or DVR-200, the address of the meter is always “1”. For multi-meter controllers, the address of the meter is its “position” in the controller. For example, in a Model 270, the setpoint meter has an address of ‘1’, the over-temperature meter has an address of ‘2’. In a Quad temperature controllers, the meters have addresses 1 to 4.



Comm settings: Baud (9600), Data bits (8), Stop bits (1), Parity (None), No handshaking.

**Table 1. Implemented ASCII Commands**

Command	Controller Reply	Comments
<b>T(address)\r</b> Example: T(1)\r  <i>Address is the address of the meter.            The character '\r' represents the control            character carriage return and has the            HEX value of 0x0D</i>  All commands are case sensitive	85.4\r	The ‘T’ command requests the controller to return the current system temperature for temperature controllers, or the current system pressure for vacuum regulators. Temperature readings are returned in units of °C or °F (whatever the meter is programmed for) and in the case of pressures the units are mmHg (torr).
<b>P(address)\r</b> Example: P(2)\r  Address is the controller address.	75.0	The ‘P’ command requests the controller to return the current setpoint value. Temperature setpoints are returned in units of °C or °F (whatever the meter is programmed for) and in the case of pressures the units are mmHg (torr).

<b>S(address,value)\r</b> Example: S(1,85.0)\r  Address is the controller address. Value is the new setpoint value	85.0\r	The ‘S’ command enters a new setpoint value in the controller. Temperature setpoints must be in units of °C or °F (whatever the meter is programmed for) and in the case of pressures the units are mmHg (torr). To acknowledge receive to the new setpoint, the controller replies with the setpoint value that was sent, in this case the reply would be “85.0\r”
<b>?(0)\r</b>	<b>00001234:210-T-1-CT-021608-!T\r</b>	This command returns the instrument serial number and model type. The reply will be something like this: <b>00001234:210-T-1-CT-021608-!T\r</b> The serial number is the first 8 characters of the reply, which in this case is “00012345”.
<b>Error Handling</b> <b>J(address)\r</b>   <b>T(bad address)\r</b>	ERROR\r   No reply	There is no ‘J’ command. If an invalid command is sent to a valid address, the word ERROR is returned.   If a valid command is sent to a non-existing address, no reply occurs.

An upgrade to the USB board software is available that adds two additional commands to the ASCII command set. The commands are:

**Set Maximum Power Output** – Sets the maximum allowable power from the temperature controller. This is useful for applications different power outputs during different stages of the heating/cooling process. For example, a very slow temperature ramp from 30 to 300 C.

**Get Percent Power Applied** – Useful to monitor for exothermic and endothermic reactions. During the course of a reaction, the controller’s PID algorithm applied different levels of power to reach and then maintain the setpoint temperature. In the event of an exotherm, the controller will reduce its output power to minimize the temperature overshoot resulting from the exotherm. Monitoring and logging the actual power applied to the heater is a useful method to quantify the magnitude of an exotherm.

Contact J-KEM for information regarding the USB Software Extension. Price \$75.00.