

## Bulletin No. 207

### Application of 4857A Controller

**For Data Logging the 4857A  
is the choice based upon  
performance and cost.**

***Note: The 4857 is out of production as of November, 2009.***

More and more customers are interested in using PCs with their high pressure reaction equipment to display and record the parameters of their reactions.

A significant step forward was made when the Cal Controller became the principal temperature control module in the 4843 and 4836 Controllers. This control module provided not only the RS-232 serial port required but also the software needed to facilitate the transfer of the temperature data from the 4843 to the PC. It also provided for the set up of the control parameters.

But temperature is only one of the parameters of interest in these reactions. Users are also interested in the operating pressure, the stirrer speed, and the motor load which relates directly to viscosity of the reactants. All of these parameters can be monitored with the expansion modules available to the 4843 Controller. The optional communications outputs from these expansion modules are however, analog and not digital. To convert these signals to digital signals which the PC can accept requires the addition of the 4846 Data Acquisition System with its digital to analog conversion board and supporting software. Unfortunately, this provides a hybrid system with the primary temperature reaching the PC as a direct digital signal through one portal and the other parameters coming in through a second portal. A further restriction of this hybrid system is that no control signals can be sent for any of the parameters recorded through the analog meters.

The 4857A Controller on the other hand, is an all digital system providing not only digital input signals to the PC of all monitored data but also bidirectional communications for control as well as monitoring the reactor. All of the data from the 4857A is transferred directly to the PC through a single RS-232 serial port connection and to the included software provided for the displayed logging of this data. It also provides the setting of all operating parameters, temperature set points and alarms, pressure alarms, stirrer speed and motor loading limits from the PC.



Not only is the 4857A more powerful and convenient to use than that of the expanded 4843; it is also more cost effective as is shown in the following table.

**Cost Comparison Table:**

<b>Features</b>	<b>4843 Controller</b>	<b>4857A Controller</b>
Controller	\$2,680.00	\$5,880.00
TDM(A)	\$ 650.00	Included
PDM(A)	\$1,290.00	Included
AMM(A)	\$ 550.00	Included
4846 Data Acquisition System	\$2,550.00	Not Needed
Computer port and software	Included	Included
<b>Total Cost</b>	<b>\$7,720.00</b>	<b>\$5,980.00</b>
Possible Optional Module HTM(A) High Temp. Cut-Off	\$650.00	\$390.00

So for customers who want to record their operating parameters using a PC, the 4857A is the controller of choice based upon cost as well as advanced design features.

For users who wish to automate their reactor including the control of valves, flow meters, pumps and other accessories the 4871 Process Controller will be the right option.

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