

## Advantech Device Specific Help

### Advantech PCL-718/818 I/O Cards, V 3.0

The Advantech DLL driver supports the operation of ADVANTECH data acquisition cards and signal conditioning boards. The following table lists the cards and functions supported:

**TABLE 1: Advantech DLL Driver Software Support**

<u>Hardware Type</u>	<u>DLL Driver</u>	<u>A/D</u>	<u>D/A</u>	<u>DIO</u>	<u>TEMP</u>	<u>COUNTER</u>	
ALARM							
PCL-718	adPCL818.drv	YES	YES	YES	YES*	YES	NO
PCL-818	adPCL818.drv	YES	YES	YES	YES*	YES	NO

A/D=ANALOG INPUT, D/A=ANALOG OUTPUT, DIO=DIGITAL I/O,  
TEMP=TEMPERATURE MEASUREMENT

\* Temperature measurement using the PCLD-789, PCLD-779, PCLD-5B16, or PCLD-770 daughterboards.

All cards listed can be used in an IBM PC or compatible. A series of wiring terminal boards and signal conditioning boards, listed below, are also available for making your applications easier to implement:

- \* PCLD-770 Signal conditioning board
- \* PCLD-779 Thermocouple Amplifier/Multiplexer Board
- \* PCLD-789 Amplifier/Multiplexer Board.
- \* PCLD-5B16 5B Module Carrier Board
- \* PCLD-774 Analog Expansion Board
- \* PCLD-786 AC/DC Power SSR and Relay Driver Board.
- \* PCLD-7216 SSR I/O Module Carrier Board
- \* PCLD-7224 SSR I/O Module Carrier Board
- \* PCLD-785 Relay Output Board.
- \* PCLD-885 Power Relay Output Board
- \* PCLD-782 Isolated D/I Board.
- \* PCLD-7115 Wiring Terminal Board
- \* PCLD-780 Wiring Terminal Board.
- \* PCLD-880 Industrial wiring Terminal Board.

### I/O CARD FUNCTIONAL DESCRIPTION

#### PCL-718/818

16channels singleended, or 8channels differential analog inputs  
2 analog outputs  
16 digital inputs  
16 digital outputs  
1 timer/counter channel

### HARDWARE CONFIGURATION

Before an acquisition board can work properly with the DLL driver software, it must be configured correctly. You must determine the hardware options (input range(s), I/O address, etc.) which suit your particular requirements. On all ADVANTECH boards, configuration is a matter of setting jumpers and switches. Read the manual that comes with your ADVANTECH

board in conjunction with this help to determine how to configure the hardware. All ADVANTECH boards are shipped with factory default settings. If the default configuration is appropriate for your system, no additional set-up is required.

### **Configuring the PCL-718 or PCL-818**

The following options must be configured on the PCL-718 or PCL-818 before they can be used with the Advantech DLL driver:

- \* Base Address
- \* A/D Input Polarity (Bipolar or Unipolar) PCL-718
- \* A/D Input Range/Gain
- \* A/D Input Mode (Differential or Single-Ended)
- \* D/A Reference Voltage

#### Software Gain Setting:

If remote gain control mode is used on the PCL-818, the A/D input gain is set directly through the application software. If the PCL-818 is operated under local gain control mode, its A/D input range is set by DIP switches. The PCL-818 is identical to the PCL-718 when it is operated under local control mode. PCL-718 parameters menu can be used for configuring the PCL-818 in local mode. For switch-selectable gain, you must enter the appropriate gain in the DLL driver's dialog box menu.

#### Event Counter/Square Wave Generator/Frequency Counter:

Counter channel 0 functions as a rising edge event counter, square wave generator, or frequency counter. In reference to the Advantech API functions for event counter, pulse output, or frequency counter/measurement operation (all supported), hardware "gating", in which the counter may be started by a separate external hardware input, is not supported by the driver DLL. When using the API function to start the counter/timer, you may start the counter at any value between zero and  $2^{32}$ . Since only one 8253/8254 counter channel is available, the pulse output may only be in the form of a square wave generator (50% duty cycle only). The frequency counter is not a highly accurate one, also because there is only one counter channel used.

When using the PCL-718/818 as a square wave generator, the on-board clock source will be selected automatically by the driver. The square wave will then be generated on the output pin of the counter used (counter zero). As an event counter, connect the external event generator to the clock input of the desired counter (counter zero). As a frequency counter, wire the same as for event counter operation.

