

ADIC Linear Array Controller R5 Hardware & Software Notes:

Compatibility with older arrays:

The R5 controller board set works only with Rev G (5V) muxed arrays.

Compatibility with older software:

The ADICLib_256R5.DLL software programming API is compatible only with the R5 hardware boards and is not backward compatible with R4 hardware boards and front end software written for R4 boards. For R4 boards, use the prior DLL version, ADICLib_256R4.DLL

The ADICLib_256R5 programming API is setup to work with multiple array boards connected to the same computer, functions that did not have the ability to communicate with multiple boards in the R4 programming API have been removed from the R5 programming API:

HideBadPixels is replaced by HideBadPixels_Brd
SetConversionRef is replaced by SetConversionRef_Brd
SetDACReferences is replaced by SetDACReferences_Brd
SetGlobalSkimVal is replaced by SetGlobalSkimVal_Brd

The xxxx_Brd functions already existed in the R4 DLL, but the function variants listed above that defaulted only to the first array board in the system have been removed from the R5 DLL.

Additionally, the obsolete functions, GetData and GetDeviceHandle have been removed from the R5 DLL. Use the GetData2 and GetBoard_Handle functions instead.

The R5 board set adds a high quality bidirectional TE cooler controller replacing the simple PWM cooler used on the R4 board. There are an additional nine (9) commands added to provide control and feedback from the new TE controller module

The following R4 board cooler function calls have been removed from the R5 DLL:

- ReadPWM
- ReadTemp
- TECoolerPower

A list of new commands added for the R5 board cooler control is given below:

- SetTESetPoint
- TurnEnhCoolerOn
- TurnEnhCoolerOff
- ReadTecADChannel
- ReadTeSetPoint
- StoreTeSetPoint
- RecallTeSetPoint
- ReadTecStatus

- TecQuery

An R5 hardware board set can be operated with the R4 software, except that TE control will not be possible

Hardware:

The R5 board system consists of two PC boards that are permanently soldered together as a pair. Assembly to an array is simply a matter of snapping the 28 pin array into the 28 pin socket on the R5 system. Take care that pin 1 of the array is oriented properly. Pin 1 on the board is denoted by a square pad on the PC board. The combined unit can then be slipped onto the heat sink and tightened down.

Power:

The power connector and power cable for the R5 board set are the same as for the R4 board. The RED and BLACK lines are still +12 Volts and ground respectively. The 12 volts power every thing but the TE controller, the current required is under 100mA. The TE cooler is powered by the yellow and blue wires (both are doubled up with two wires per line) which are +5V (yellow) and ground (blue) respectively. The power requirements depend on the TEC element itself and the requested set point temperature. It is recommended to use a minimum of a 15 watt external supply (5V @ 3A).