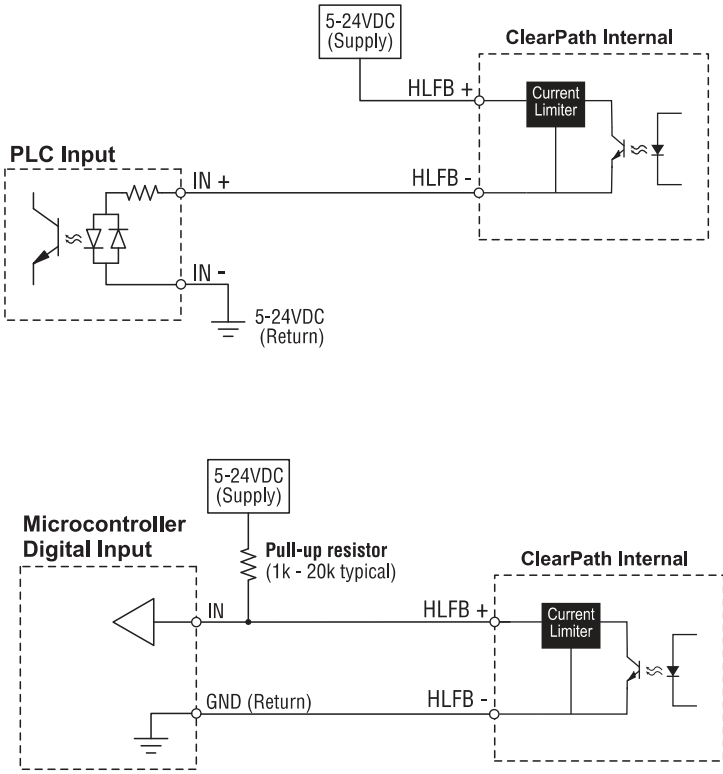
Tech Note: HLFB and Signal Noise

In most applications, the machine controller either samples the HLFB binary signal, or, when HLFB is set as a PWM output, filters it and reads it as an analog signal. If, however, in your system, you plan to use a digital timer to directly measure the duty cycle of the HLFB signal, it is possible that the common mode noise rejection of the opto-coupler used in the HLFB output circuit, and the high impedance of the HLFB output when it is off, will cause your controller to experience noise as the HLFB output transitions.

If you experience this problem, there are several possible remedies: (1) use a low value pull-up, e.g., a 2k ohm resistor is recommended in a 5V system; (2) Use a Schmitt trigger input to read the HLFB output; (3) turn on I/O pin digital filtering (available in some microprocessors); (4) construct a non-linear filter in software to remove any unreasonable readings.

HLFB OUTPUT WIRING EXAMPLES

HLFB Output Wiring Examples



Tips on microcontroller inputs

- Check your microcontroller documentation to see if the inputs already have internal pull-up resistors before adding an external pull-up. Most Arduinos, for example, let you "turn on" or "turn off" internal pull-up resistors with a simple line of code. See link below for more information on Arduino inputs.