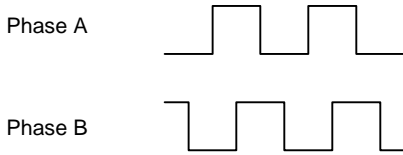


# Single-Ended Encoder with Accelus Card

## Introduction

### Encoder Sensor

Quadrature encoders typically provide two square waves (phase A and B) that are 90° apart.

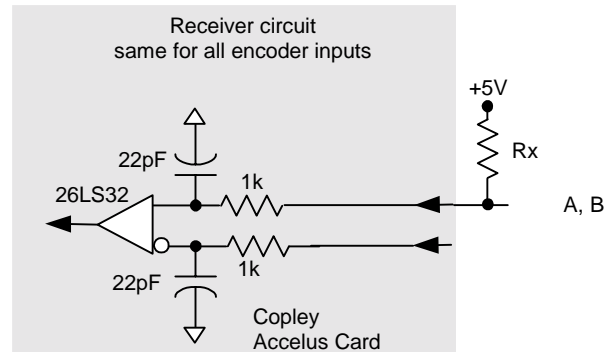


The Accelus™ Digital amplifier can determine the direction of travel from the state of the encoder signals. The Accelus™ will use the encoder to perform sinusoidal commutation and, when in velocity and position mode, control the motor.

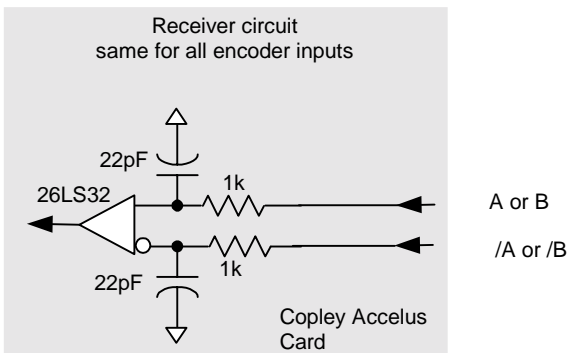
The encoder receiver circuit for the Accelus™ Card will receive the quadrature encoder signals: phase A, phase B. See figure below. This circuit is designed to work with differential signals that reduce the risk of count errors.

Note: A single-ended encoder *will not operate properly* with a differential receiver unless a pull-up resistor is used.

To use a single-ended encoder, 2 pull-up resistor Rx are required. See diagram below. The value of Rx depends on the current sinking capability of the encoder output circuit. Typically a 2.2K Ohms resistor to +5V on the A and B encoder inputs is used.



External resistor used to receive single ended encoder.



Differential receiver for differential encoder.

## Instructions

- Connect Encoder A to Encoder input A on J1-11.
- Connect Encoder B to Encoder input B on J1-9.
- Connect Encoder power to +5V on J1-4.
- Connect Encoder ground to GND on J1-22.
- Connect Encoder shield (if available) to GND on J1-1

- Connect Rx Resistor from input A on J1-11 to +5V on J1-4.
- Connect Rx Resistor from input B on J1-9 to +5V on J1-4.

The Copley Development kit will have this resistor as part of the mounting board. A customer mounting board should have this resistor as part of the design, if a single ended encoder is used.

## Connections Diagram for Single-Ended Encoder

