# Trilogy© Noisy Hall filter for Accelus

Introduction

Hall Signals

Hall effect sensors are used to locate the motor in one electrical cycle. The location in the electrical cycle is important for proper commutation. Hall signals are typically generated by a Hall sensor or a commutating encode, typically with an integrated circuit that provides MOS logic. Trilogy© uses and open collector Hall effect Latch, that requires a Trilogy© recommended filter circuit.

Typical Hall signals below:

One Electrical Cycle All 6 states

Typical 120 Degree Halls shown
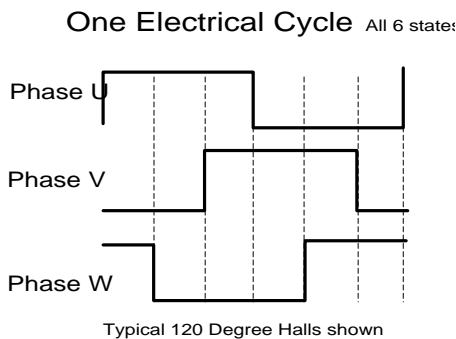
The Accelus™ Digital amplifier performs phase initialization and correction, using Hall signals. The Accelus™ will then use the encoder to perform sinusoidal commutation, while monitoring the Halls, to verify continuous proper phasing.

The Hall receiver circuit for the Accelus™ will receive the Hall signals: U, V, and W, see figure below. This circuit is designed with a filter to remove noise in most all systems, excepting systems that produce unusually large amounts of Hall noise.
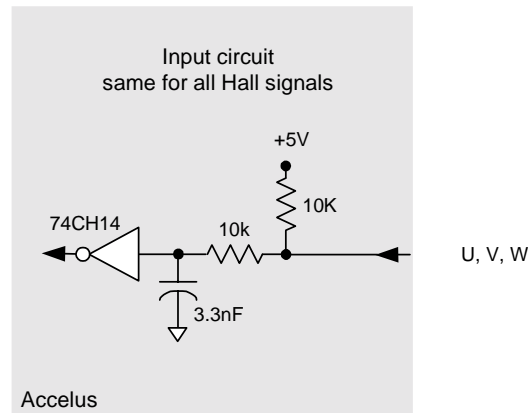
Receiver for Hall signals

Note: The Trilogy© Hall signals that use the open collector Hall Latch, **will not operate properly** with the receiver unless, 3 of the Trilogy© recommended filters are used. See figure below.
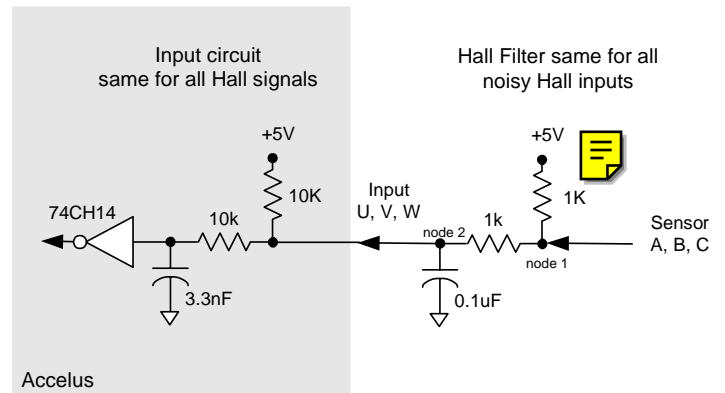
Trilogy© Hall Filter Circuit connected to the Accelus receiver.

Instructions

Connect all three filter +5V to Accelus +5V.
Connect all three filter grounds to Accelus Gnd.

Connect Trilogy© *Hall A* to first filter node 1
Connect first filter node 2 to Accelus *Hall U* input.

Connect Trilogy© *Hall B* to second filter node 1
Connect first second node 2 to Accelus *Hall V* input.

Connect Trilogy© *Hall C* to third filter node 1
Connect third filter node 2 to Accelus *Hall W* input.

Connect Trilogy© Hall power to Accelus +5V.
Connect Trilogy© Hall ground to Accelus GND.
Connect Trilogy© shield (if available) to Accelus GND

When using the Accelus Card, the customer's mounting board should have three filters as part of the design.