

ANTI-DITHER

ELECTRONIC MODULES



Introduction

This interface module uses the position information in a dual channel quadrature encoder to remove spurious counts caused by mechanical vibration. Logic gates in the Anti-Dither Module use the quadrature relationship to discriminate between dithering and actual movement. Using this quadrature relationship of the data, a signal is created with +/- 1/4 cycle of hysteresis. The index pulse from the encoder is optically isolated and passed directly to the controller for use as a reference.

WHY USE AN ANTI-DITHER MODULE?

CASE 1 – STARTS AND STOPS

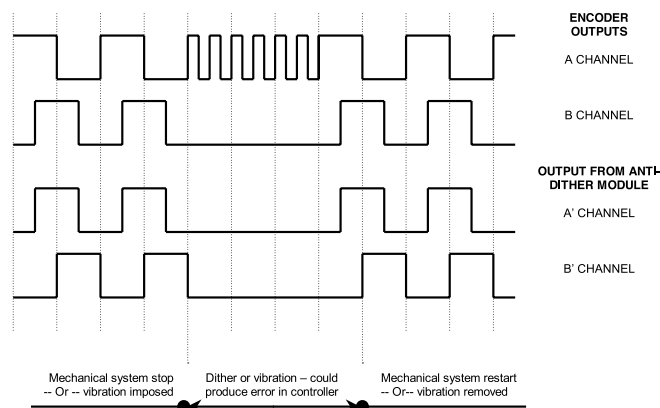
In certain applications, such as conveyor systems or web processes it may be necessary to stop the line to clear a jam or reset the process. There is no way to control where the encoder is in its output cycle when this occurs: it may have stopped at the rising or falling edge (a transition) of an output channel or somewhere in between. When it stops on a transition, there can be ambiguity in the controller. The output of the encoder may dither from its HI state to its LO state due to mechanical vibration in the conveying system. This fluctuation can be read as true motion in the controller. The Anti-Dither Module creates hysteresis so mechanical dithering does not create a false count.

CASE 2 – HIGH VIBRATION

Another situation arises where the end use involves very high vibration — construction machinery or mill duty applications for example. This is especially true when the encoder is being used as a single channel tachometer. In this instance the encoder output can have a vibration signal superimposed on the data channel, leading to multiple transitions on every cycle. This effect can be eliminated in the controller by using an encoder with dual channels in quadrature along with an Anti-Dither module. In this case, the Anti-Dither module can clean things up.

WAVEFORM DIAGRAM

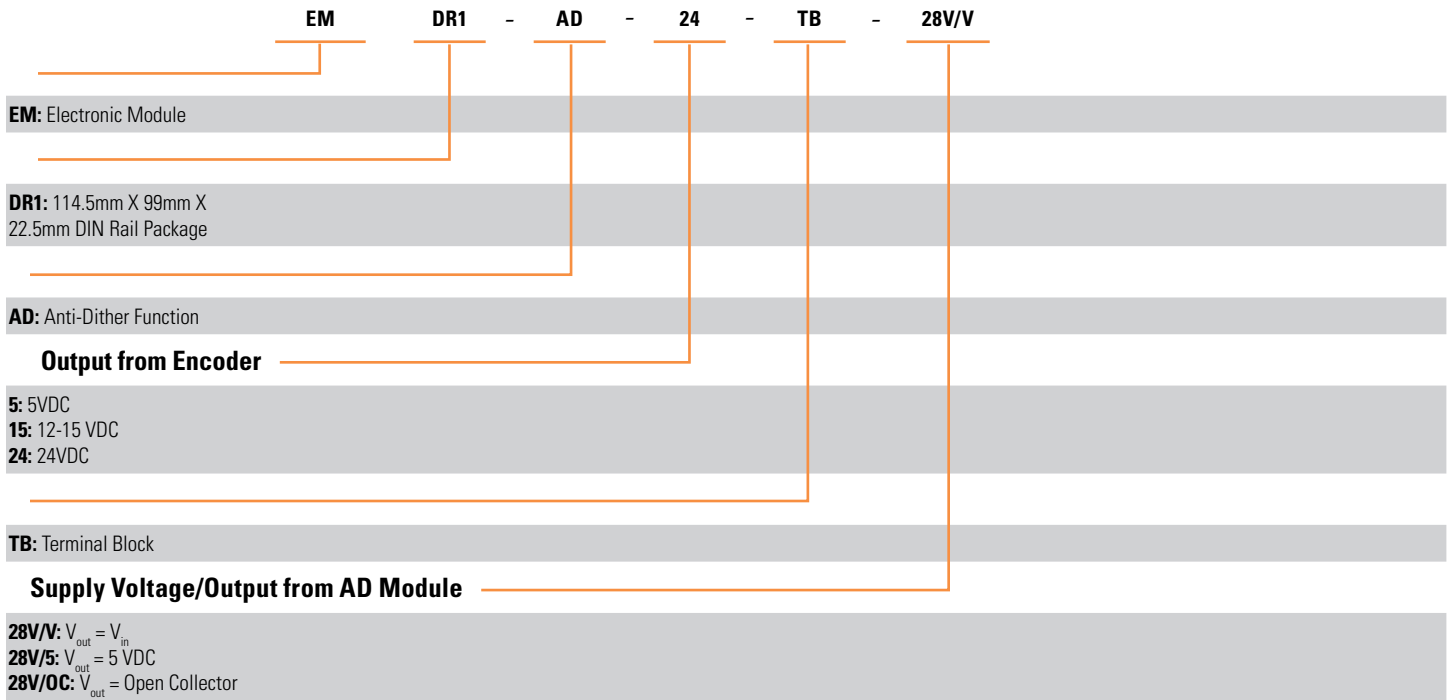
Illustrating Operation Of The Anti-Dither Function



Note: For simplicity of illustration, the inverted channels, A/ and B/ have not been shown. The index, or Z, channel is also not shown in the associated diagram but is passed through directly as an optically isolated signal and maintains its original relationship to the encoder output channel. Reference Optical Isolator Module data sheet for connection diagrams.



Use this diagram, working from left to right to construct your model number
Note: Refer to BEI Opto Isolator Module Applications guide for mechanical specifications and connection instructions.



AGENCY APPROVALS & CERTIFICATIONS



Sensata Technologies, Inc. ("Sensata") data sheets are solely intended to assist designers ("Buyers") who are developing systems that incorporate Sensata products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED "AS IS". SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata's terms and conditions of sale supplied at www.sensata.com SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS' PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

CONTACT US

Americas
+1 (800) 350 2727
sales.beisensors@sensata.com
Europe, Middle East & Africa
+33 (3) 88 20 8080
position-info.eu@sensata.com
Asia Pacific
sales.isasia@list.sensata.com
China +86 (21) 2306 1500
Japan +81 (45) 277 7117
Korea +82 (31) 601 2004
India +91 (80) 67920890
Rest of Asia +886 (2) 27602006 ext 2808