Absolute Encoder Configuration

Endat2.2

BissC

Application Note

agito

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Revision History

Version	Description	Date
1.0	Initial Release	6 December 2021

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Warranty

This product is warranted to be free of defects in material and workmanship and conforms to the specifications listed in this manual, for a period of 12 months from the shipment date from factory.

Contents

1 Introduction

1.1 Scope

This document seeks to explain how to configure absolute encoders using Agito PCSuite. In particular, it explains a method of trial and error to obtain the encoder's resolution (number of bits). The wiring details will not be discussed in this document, please refer to the hardware manual for this information.

2 Configuration

2.1 PCSuite Configuration

Firstly, ensure that the controller is not masking the main encoder error. This will allow for encoder faults to be detected. In the case of absolute encoders, encoder fault will be reported if the encoder is disconnected, if the encoder read head is not detecting the scale or if the CRC checksum does not match the position data.

To do so, launch PCSuite and connect the controller. Navigate to 

tab and then 

page. Ensure that the ☐ Mask main encoder errors checkbox is not checked.

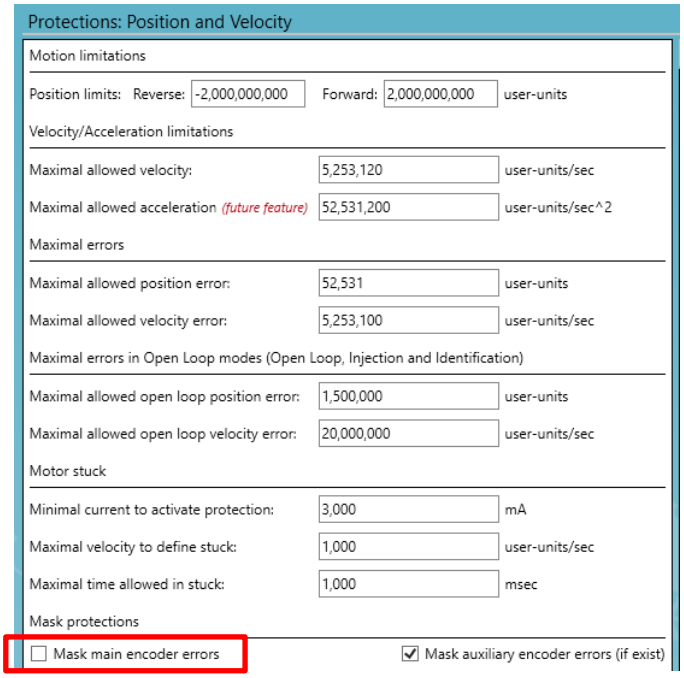

Figure 1. Screen capture of Protections: Position and Velocity Menu page.

Next, configure the protocol and set the number of bits. Navigate to 

tab 

page. Set **EncType** for the protocol you are using (3 -Endat2.2, 6 – BissC). Set **EncAbsBits** according to the resolution of the encoder. In the future, this information can be read by the controller. But for now, it has to be input manually. To know the number of bits, check the encoder datasheet or with the manufacturer. Alternatively, this value can be obtained via trial and error which will be explained below.

To obtain the number of bits through brute force, simply iterate through the values of **EncAbsBits** while observing the second bit of **HWProtectBits**. If the bit is on, and assuming there are no faults with the wiring, it means that **EncAbsBits** is set wrongly and therefore the CRC checksum is not adding up.

An easy way to check for this would be to open a status window and change the bits at the side. In PCSuite, use ***Alt + Shift + S*** to open the status window. Click on the HW Protect. (1) tab and observe if the Main enc. err. indicator is lighted up. Start by setting the highest value possible and slowly decrease the value down to the minimum. At a particular value, the error should go off; this indicates that the value is correct and the CRC checksum adds up.

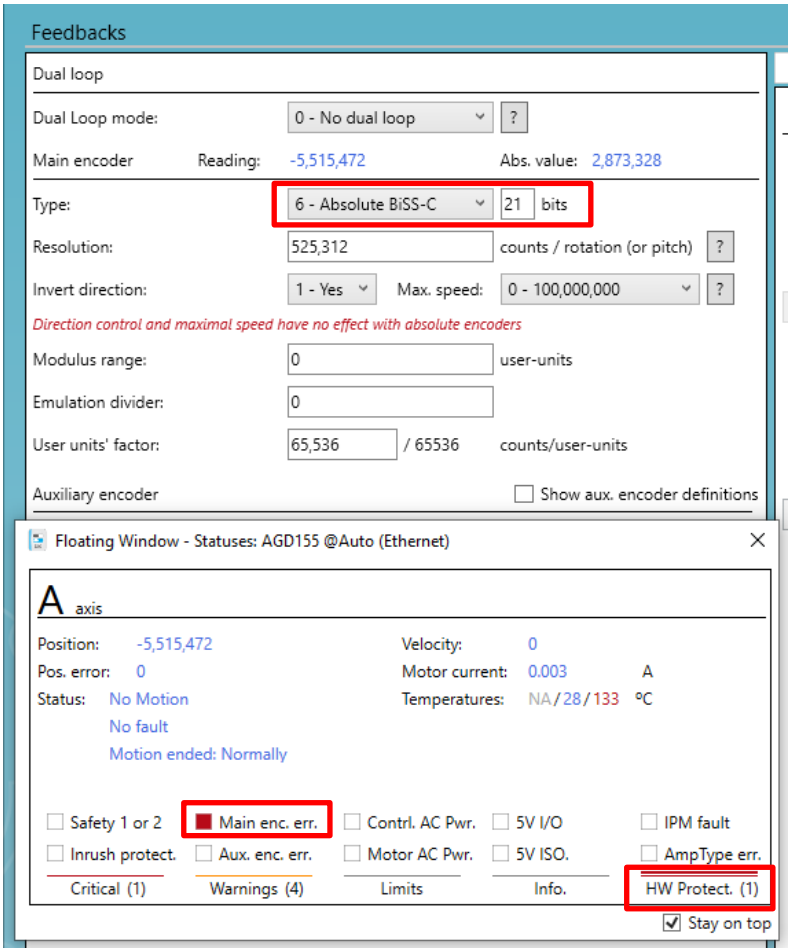

Figure 2. Screen capture of Feedbacks Menu page with Floating Status window.

Note – Corner case when main encoder error does not trigger

There are corners cases when the CRC might not report an error at certain positions, in the case where the bits are set 6 less than supposed number of bits. E.g. if the bits are supposed to be 22 and in the software it is set to 16, the CRC might pass at certain positions.

Lastly, configure the remain parameters **EncRes**, **EncDir** and **EncFilt** as you would with an incremental encoder and the setup is done.