TRIAMEC

Redefining
Motion Control

Firmware Options for the TSD and TSP drive series

SOFTWARE OPTIONS OVERVIEW

Enhance the standard firmware of the TSD and TSP drives with software options.

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1 GY - MIMO Gantry Control

Enables 100kHz MIMO gantry control with decoupled linear position and yaw displacement loops. Stiff and soft gantry setups are supported. More information is available in the Application Note AN139. This option is exclusively available for the TSD series.

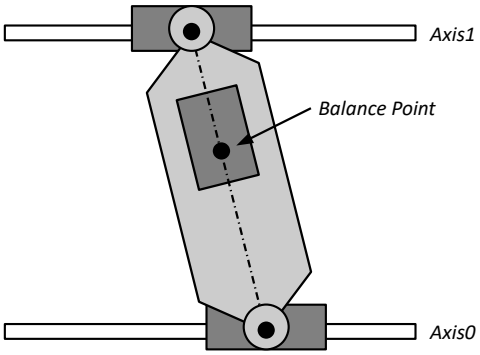

Figure 1: MIMO Gantry

2 PU – Pulsing Unit

Enables high frequency, position based, pulse generation functionality for Option Module Encoders EN and EH. More information is available in the Application Note AN152.

This option is available for the TSP and the TSD series.

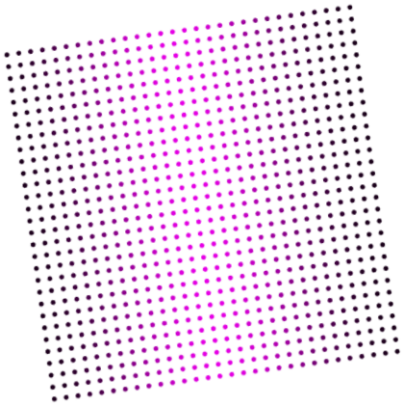

Figure 2: Pulsing Unit: pulsing pattern

3 XC – Eccentricity Compensation

Enables eccentricity compensation for rotational axes with 2 sensors on opposite sides of an encoder disc. The activated option discloses the following Register to activate the compensation independently on *Axis0* and/or *Axis1*.

Axes[].Parameters.PositionController.ExcentricityCompensation

When Eccentricity Compensation is active, the average of Encoders[0].Position and Encoders[1].Position is used as the master position of the axis in PositionController.MasterPosition. The corresponding MasterError is fed to Controllers[0].PositionError, while Controllers[1].PositionError is set to zero.

This option is available for the TSP and the TSD series.

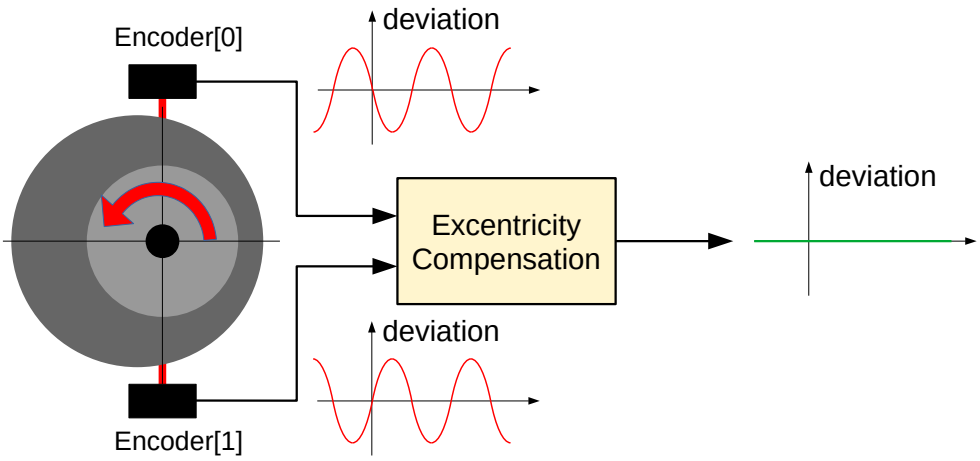

Figure 3: Eccentricity Compensation

4 H1 / H2 – Highspeed Standard Encoder

This software option is **only available for TSD80 / 130 Revision 6 or newer**.

The **sampling bandwidth of the "standard encoder"** module (X20 and X21) **can be increased** from 700kHz analog bandwidth up to 10MHz quadrature sampling.

The H1 software option increases the bandwidth of the encoder module at connector X20. The H2 option increases encoder bandwidth at both connectors X20 and X21.

Encoder module sampling bandwidth		
Software Option	X20	X21
None	700 kHz (analog bandwidth)	700 kHz (analog bandwidth)
-H1	10 MHz (quadrature)	700 kHz (analog bandwidth)
-H2	10 MHz (quadrature)	10 MHz (quadrature)

5 FS – Functional Safety

The software option FS enables integrated Functional Safety. This option is only available for TSD80 / TSD130 Revision 6. More details can be found in the Functional Safety Setup Guide[1].

6 TS – Trajectory Streaming

The software option TS enables Trajectory Streaming, a feature to stream synchronized multi-axis motion paths with a sampling frequency of up to 50kHz. More details can be found in the Trajectory Streaming application note 160[2].

Revision History

Version	Date	Editor	Comment
001	2022-03-25	sm	First release
002	2023-04-27	sm	Add Pulsing Unit
003	2025-04-29	yz	Information about XC working principle
004	2026-01-22	fm	Add H1 / H2 und FS software option chapter
005	2026-10-26	fm	Add TS option and update style

1 "Functional Safety Setup Guide", Functional-SafetySetup_EP003-2.pdf , Triamec Motion AG, 2026.
2 "AN160 Trajectory Streaming", AN160_TrajectoryStreaming_EP001.pdf, Triamec Motion AG, 2026

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