



TAM System Explorer

Release Notes

This document describes the evolution of the TAM System Explorer application as a log of notable changes.

Software Modules

There is a similar document, the TAM API release notes [1], which is more focused on the modularized software libraries of the TAM Software. Since most of the changes to the TAM System Explorer do also affect the API, these release notes are split into different modules for the developer's convenience, too:

Triamec.Tam.UI contains user interfaces.

Triamec.Tam.Core provides most of the APIs.

Triamec.Tam.TriaLink and *Triamec.Tam.EtherCat* allow for access to Tria-Link and EtherCAT devices, respectively.

Triamec.Common supplies shared functionality around settings and logging.

Triamec.Tam.Simulation supports offline analysis of system properties.

Sometimes, a regression is described using a reference to the breaking release. That version is a module version if not otherwise noted.

Document	SWNET_TamSystemExplorerReleaseNotes_EP
Version	7.25.0, 2023-12-22
Source	C:\Users\marro\source\repos\drive\sw\doc\tamsoftware\
Destination	T:\doc\Software
Owner	chm

www.triamec.com



TAM Software 7.25.0

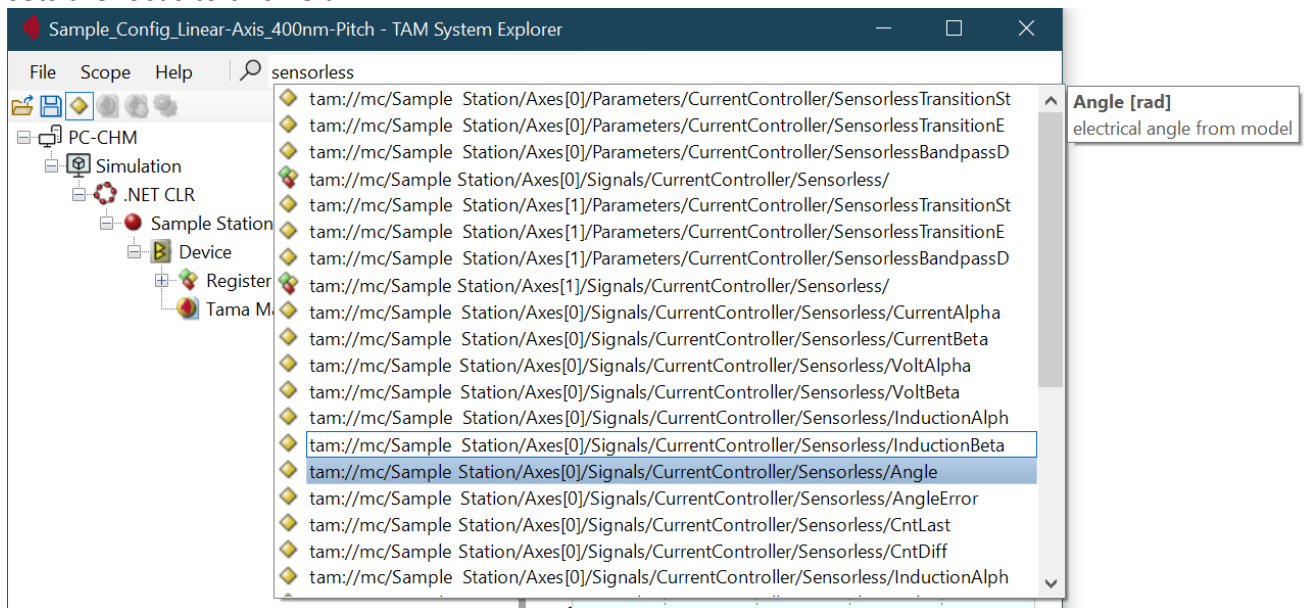
Places address field at the top and offers search functionality. Updates firmware faster.

Release date: 22.12.2023

Triamec.Tam.UI 8.0.0

New

- The address input field moved to the top and now features auto completion. Pressing F3 always sets the focus to this field.



The entries feature a tool tip with unit and description.

- In the register grid, allows to enter references to registers as an address, with the help of auto completion.

Change

- Copies only the value of the selected register to clipboard, and not longer the whole row.

Bug

- Fixes a regression in 7.20.1 where no cursor and analysis values were shown in loaded CSV data when the plots couldn't be related to registers.

Triamec.Tam.Core 18.0.0

Change

- In conjunction with firmware 4.20 or newer, performs faster firmware updates.

Bugs

- Doesn't longer freeze when multiple drives are reconnected simultaneously via network.
- Fixes a regression in 17.0.2 where virtual COM devices wouldn't longer be automatically detected.



TAM Software 7.24.1

Required for new firmware features.

Release date: 2.11.2023

Triamec.Tam.UI 17.20.1

Bugs

- Scope correctly plots registers where the type can be flexibly chosen among float, hex and signed integer.
- Fixes a defect where digital plots are outside the visible range when adding them after arranging a scope with all non-digital plots.
- Fixes a defect where an FFT of a short period of data failed with error "Timestamp must be fully specified".
- Gets plot highlighting right when scrolling the plot list and across sessions.
- Brakes a possible endless loop during Bode Measurement as of 7.19.0.
- Addresses an inconsistency in Dual Loop Bode Tuning when altering the feed forward acceleration.

Triamec.Tam.Core 17.0.2

Bugs

- Addresses timeouts during firmware download over Tria-Link bus as of firmware 4.18.
- Allows to open a TAM configuration offline which configures periphery.
- Fixes a defect as of 15.0.0 where acquiring two times from the same 64-bit register ended up in the first variable carrying nonsensical data.
- Addresses a massive startup delay on some systems when Bluetooth was enabled.

TAM Software 7.24.0

Fixes some bugs and introduces a new scope template.

Release date: 4.7.2023

Triamec.Tam.UI 17.20.0

Feature

- Introduces *Sensorless Motor-R Analysis* scope template.

Bug

- Backports Bode auto range behavior for firmware < 4.19 which had a defect which could cause the scan to never terminate.

Triamec.Tam.Core 17.0.1

Bug

- Fixes an infrequent `ArgumentException` crash in the network subsystem after the connection has been restarted.



TAM Software 7.23.0

Access homing from within the axis user interface.

Release date: 15.6.2023

Triamec.Tam.UI 7.19.0

New

- Allow to home the axis from within the axis user interface. If homing is configured, the homing state is shown above the axis state.
- In offline mode, prepend the window title with the name of the TAM configuration file the simulation is based upon.

Changes

- Various changes and improvements in Bode measurement. These are the most important ones:
 - ♦ Introduces an optimized frequency spacing which shortens measuring time while maintaining quality. This is used as the default, but linear and logarithmic spacing can still be chosen.
 - ♦ Improved gain adaption in order to minimize discontinuities in the Bode graph.
 - ♦ Allows to input measurement point maxima with arbitrary precision.
 - ♦ F12 now works within Bode.
 - ♦ [BREAKING] The .csv format has changed and cannot be interpreted with previous releases.
- Popular zoom arrange is propagated to the scope tool bar and mapped to the F6 key.

Discontinued

- Removes the Couple button from the axis module. Set the axis' *Commands/PathPlanner/Command* register to *MoveDirectCoupled*, instead.

Bugs

- Fixes a regression with 7.18.0 regarding narrow column widths in the register grid view when coming from another tab.
- Fixes zooming issues in the Bode Tuning:
 - ♦ In Bode graph, automatic zooming stops to work after comparison.
 - ♦ Nyquist zoom cannot be reset after repeated switching to Bode graph.
- Fixes an inconvenience where the time bar of plot CSV data reflected the elapsed time since midnight instead of the start of the measurement.
- Fixes a defect where the reference time shown on the upper right corner of the scope and when printed had an offset when the scope rolled.
- Addresses crashes in the scope when data contains NaN or Infinity.
- Addresses installations where links cannot be opened automatically in the default browser.

Triamec.Tam.Core 17.0.0

Change

- DNS names of devices accessed via Ethernet are no longer resolved per default, since this led to painful startup delays with some configurations. If necessary, check the new **Startup > Use DNS** preference.



TAM Software 7.22.2

Fixes bugs.

Release date: 21.2.2023

Triamec.Tam.UI 7.18.2

Change

- Allows to disable the digital plot feature in the preferences (**Appearance > Disable digital plot**). This may help to use vertical space more economically with many boolean valued plots involved.

Discontinued

- Removes the Coupling Manager from the axis module. Use the drive-to-drive data exchange feature instead, described in application note AN142.

Bug

- Fixes a regression with 7.18.0 regarding enumeration register choice in the register grid.

TAM Software 7.22.1

Fixes bugs.

Release date: 2.2.2023

Triamec.Tam.UI 7.18.1

Change

- Proposes the maximum possible value for the upper frequency bound in Bode measurement.




TAM Software 7.22.0

Allows to protect setup.

Release date: 1.2.2023

New

- System suppliers can protect setup modifications through the TAM System Explorer with a password using the menu **File > Protect Setup**. As an end user, you may see a lock symbol  in various places of the application where functionality is disabled.

Triamec.Tam.UI 7.18.0

Change

- Register grid columns automatically grow to the required width. In turn, you can no longer resize the width by yourself.

Bugs

- Fixes a regression as of 7.17.0 where non-boolean signals added to an arranged scope with only boolean signals don't receive their expected Y-axis.
- Fixes a regression as of 7.17.0 where Bode Tuning of filters in Dual-Loop mode was no longer possible.

Triamec.Tam.Core 16.0.0

Bugs

- Fixes a defect as of TAM Software 7.20.0 where devices were mirrored on network interface cards which were not operational.
- Fixes a regression as of 15.0.0 where you received a message "illegal register offset reported" at startup for drives with firmware $\leq 4.13.0$. Then, those drives couldn't be accessed.
- Fixes a regression as of 15.0.0 where an unexpected exception occurred upon the attempt to acquire high-speed data from similar registers of several devices.

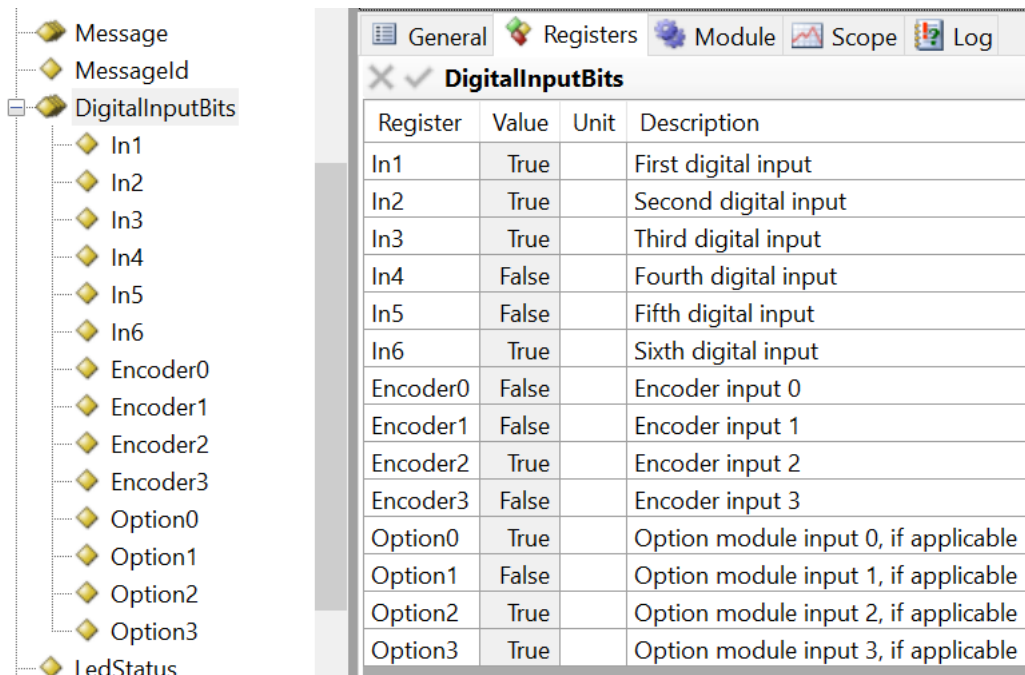
TAM Software 7.21.0

Introduces a start dialog and decomposed bit fields.

Release date: 22.11.2022

New

- Introduces a start dialog shown when the TAM System Explorer doesn't find any device.
- Decomposes bit fields. The most prominent example is the *DigitalInputBits* register. Continue to use the register as a whole, but on top of that, unfold the register to show the individual fields with their name, value, and description.



The screenshot shows the TAM System Explorer on the left with a tree view containing folders like Message, MessageId, and DigitalInputBits. Under DigitalInputBits, there are sub-items: In1 through In6, Encoder0 through Encoder3, Option0 through Option3, and LedStatus. On the right, a 'Registers' window is open, displaying a table for the 'DigitalInputBits' register.

Register	Value	Unit	Description
In1	True		First digital input
In2	True		Second digital input
In3	True		Third digital input
In4	False		Fourth digital input
In5	False		Fifth digital input
In6	True		Sixth digital input
Encoder0	False		Encoder input 0
Encoder1	False		Encoder input 1
Encoder2	True		Encoder input 2
Encoder3	False		Encoder input 3
Option0	True		Option module input 0, if applicable
Option1	False		Option module input 1, if applicable
Option2	True		Option module input 2, if applicable
Option3	True		Option module input 3, if applicable

Additionally, the textual representation of the register changes from a hexadecimal value to a comprehensible bit-wise format.


`DigitalInputBits Opt:0011 Enc:0100 In:111001`

Triamec.Tam.UI 7.17.0

New

- Stacked arrangement of boolean valued registers including labels.
- Bode Measurement for One Position Two Motors setup.

Changes

- Selecting a register in the grid doesn't longer locate it in the explorer. Use the new button  above the grid when needed.
- An enabled axis with a warning shows both the enabled state and the warning indicator in the Axis Monitor and the Axis Module. Previously, they only showed the warning.

Bugs

- Chooses more sensible defaults for positional maxima in Bode measurement and displays small values correctly.



- Fixes too frequent zooming resets in the Bode graph of Bode Tuning regressed in 7.15.0.
- Makes frequency label editing work in the Bode Tuning Nyquist graph.

Triamec.Tam.TriaLink 7.17.0, Triamec.Tam.EtherCat 7.17.0

Bug

- Fixes a regression as of 7.16.0 where multiple network connections would be established to a drive at the same time in the same app, and under the same network interface card.

Triamec.Tam.Core 15.0.0

New

- Adds address and channel information to the Tria-Link Health Monitor.

Bugs

- Fixes a regression as of 14.0.0 blocking TL firmware update.
- Fixes an issue where a device hot-plugged via network triggered loading of startup configurations twice.



TAM Software 7.20.0

Usability improvements and bug fixes.

Release date: 26.8.2022

Change

- We have renamed the **Open simulated** context menu on TAM configurations in the file explorer to **Open offline**.

Triamec.Tam.UI 7.16.1

New

- Menu **File > Open Configuration Offline...** closes the current window and starts a new instance with an offline system, which is seeded with the TAM configuration you pick. This works similar to and complements the **Open offline** context menu on TAM configurations in the file explorer.

Changes

- Identify offline system by means of
 - ♦ an extra adapter icon, the same as used for Menu **File > Open Configuration Offline**, and
 - ♦ a dark status bar including a dedicated label on the right corner.
- Bode diagram leaves scale intact in compare mode.

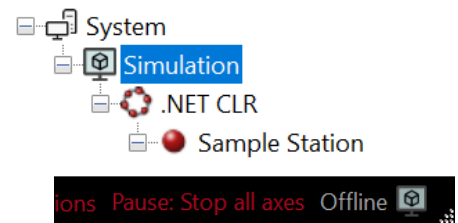
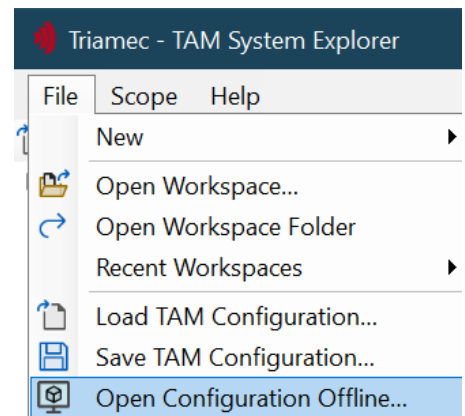
Bugs

- Fixes a defect in Bode diagram with measurements partitioned into several frequency ranges, where the cursor wasn't placed at the correct frequency when placing the other cursor on the plot of a different frequency range.
- Fixes some issues with the Nyquist graph:
 - ♦ Axis ratio was not maintained after editing a range.
 - ♦ The desired range wasn't always set.
 - ♦ The graph shrunk during continuous window resizes.

Triamec.Tam.TriaLink 7.16.0, Triamec.Tam.EtherCat 7.16.0

New

- The network interface now continuously scans for connected devices.





TAM Software 7.19.0

New scope templates, bug fixes.

Release date: 8.6.2022

Triamec.Tam.UI 7.16.0

Feature

- Introduces and adjusts Scope templates for ideal use with the Drive Setup Guide.
- Create Report saves a support e-mail shortcut beneath the report archive.

Changes

- Renames Angle Search scope template to Phasing Analysis and adds position error.
- Closes Bode Measurement, Bode Tuning, Manage Persistency and Periphery Access dialogs if the device is disconnected.
- Let's time start at zero when exporting plots to CSV. Previously, there was an offset related to the Tria-Link timestamp.
- When a firmware download cannot be accomplished since the target is not ready (for example due to STO), this is now indicated right when the download dialog is shown, rather than after having commanded the download to start.

Bugs

- Fixes a crash in the scope when a cursor was active and there were no longer any plots after loading a configuration (including scope autoload).
- When the host lost connection to a device (surprise removal), open windows tied to that device will automatically close, and no longer cause a crash in that situation.

Triamec.Tam.TriaLink 7.15.0, Triamec.Tam.EtherCAT 7.15.0

Change

- Previous version of the TAM Software use a different Triamec Workspace setting to save which network interface cards to leverage. Upgrading to this version will enable all network interface cards.

TAM Software 7.18.0

Usability improvements and bug fixes.

Release date: 29.3.2022

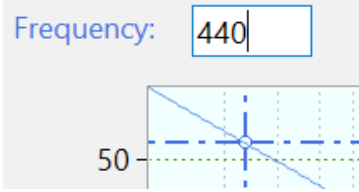
Installation

Change

- Side-by-side installations don't longer share documentation.

Triamec.Tam.UI 7.15.0

Changes

- Various improvements in Bode Tuning:
 - ♦ Allows tuning the feed forward acceleration right in the interface.
 - ♦ Doesn't longer provide velocity controller tuning per default. The new *Enable velocity controller* preference can be used to activate it, though.
 - ♦ Lets the user confirm any attempt to close the window while parameters are modified.
 - ♦ Doesn't longer revert parameters using ESC key.
 - ♦ Introduces an option to render the phase in the range $[-360^\circ, 0^\circ]$.
 - ♦ The ability to edit the axis ranges by clicking on the end labels is no longer restricted to the phase axis. To compensate, the extra input box to limit the frequency has been removed.
 - ♦ Addresses an inconvenience where the phase axis limits were constantly rounded during interactive range changes. Rounding is now limited to initial rendering.
 - ♦ Frequency can be entered right in its label:
 - ♦ Cursors follow mouse clicks.
 - ♦ Cursors are easier to drag and plots are less narrow with high DPI scaling.
 - ♦ Synchronizes the Bode plot areas to always share the same width, even with high DPI scaling.
 - ♦ Addresses an inconvenience where the signal list is not always visible.
 - ♦ Makes some controls more discoverable.
- Reduces default sampling time in oscilloscope to 0.1 ms.

Bugs

- Ceases showing unrelated data in a triggered scope when no data was yet acquired and the stop button was clicked.
- Improves behavior when attempting to plot data above the supported volume.
- Fixes a race condition while opening the Link Health Monitor, leading to a `NullReferenceException`.

Triamec.Tam.Core 12.0.5

Bugs

- Addresses an inconvenience where loading a TAM configuration with EnDat encoders times out. Repeating the operation worked around this issue.
- Fixes a defect blocking firmware update for drives having revision 0A, 0B, 0C or 0D.
- Addresses an issue where the sequence of progress messages during a firmware update wasn't always maintained.

Triamec.Common 7.3.6

Change

- Tria-Link access via PCI adapter card is no longer configured per default.



TAM Software 7.17.2

Addresses issues regarding Tria-Link PCI and PCI express adapters. This update is highly recommended when using this hardware.

Release date: 30.12.2021

Triamec.Tam.Core 12.0.4

Bugs

- Fixes data logging performance for Tria-Link adapters not providing an interrupt. On systems suffering from this issue, plotting data was barely possible. Due to an unfortunate timing, some systems only reproduced the issue when the Firefox web browser was running.
- Addresses a data acquisition issue when data couldn't be consumed in real-time. For example, attempting to plot 80 kSamples in one second via a TL100 PCI adapter only showed appropriately half a second of data.

TAM Software 7.17.1

Improves usability.

Release date: 14.12.2021

Triamec.Tam.UI 7.14.1

Bug

- The emergency keys (F12 and Pause) now work in the Bode Measurement and Bode Tuning windows, too.



TAM Software 7.17.0

Introduces new elements in the Axis Monitor.

Release date: 22.11.2021

Triamec.Tam.UI 7.14.0

Features

- The Axis Monitor replicates detailed warning and errors as provided by the devices.
- Errors or warnings shown in the Axis Monitor are replicated one at a time in the status bar.

Changes

- The *Acknowledge Errors* button is enabled as soon as warnings or errors appear in the Axis Monitor irrespective of their persistence.
- The Create Report button already part of the log tab toolbar strip is now also available in the status bar, flashing upon appearance of errors.

Bugs

- Addresses an issue in the Axis Monitor where acknowledging cleared a hidden axis error.
- Supports measuring a Bode plot of both axes of a drive simultaneously. Note that you still might run short of resources when doing this with a dual-loop system, or when attempting to sample with 100 kHz.
- Addresses an issue where the original drive parameters were not restored if disabling failed after a Bode measurement.
- Gets rid of the error message Issue in `_parametersDataGridView...` by removing obsolete parameters from the axis module.

Triamec.Tam.Core 12.0.2

Bugs

- Works around a fatal exception at first start-up: *bad parameter or other API misuse Failed to configure managed assembly logging*, observed since 12.0.0.
- Handles a race condition during network discovery, while a network interface card is removed.
- Addresses a 12.0.0 regression where firmware update via Tria-Link PCI failed for new generation drives with firmware prior 4.9.1.

Triamec.Tam.Simulation 7.1.7

Bug

- Addresses a regression in 7.1.5 where simulated drives with register layout 19 refused motion.

Drivers

New

- Driver support for most current Windows systems where you previously got an error code 52. These drivers are backward compatible with previous versions of the TAM Software.



TAM Software 7.16.1

This release contains bug fixes.

Release date: 20.9.2021

Triamec.Tam.UI 7.13.1

Changes

- The top-level topology node is hidden from the view.

Bugs

- Addressed a crash as of 7.13.0 when the plot list of the scope became unusable on an attempt to remove an aggregate function column.
- Addressed an issue where Bode measurement didn't consider register parameter changes made between opening the window and starting a measurement, or in between measurements.

Triamec.Tam.Core 12.0.0

Bug

- Addressed a crash upon an attempt to load a dump file with more than 8 signals.

Triamec.Tam.TriaLink 7.14.1

Bug

- Addressed a regression as of 7.14.0 where previous generation drives could no longer be simulated.



TAM Software 7.16.0

This release features handling of a new kind of data logging files, that is, dump files produced by recent firmware.

This release also improves usability and fixes some notable issues.

Release date: 15.6.2021

Triamec.Tam.UI 7.13.0

Features

- Allow loading .TAMdump dump files produced by recent firmware into the scope.
- The archive created with **Help > Create Report** now includes device-side reports.
- Show absolute local time of the time axis origin in the scope.
- Show address in tool-tip when hovering over a plot legend row.
- Plots of short-named registers get a default name including the register's parent name.

Changes

- Configuration dialogs now close automatically when successful.
- Serial numbers are always shown when needing to resolve the stations of a TAM configuration.

Bugs

- Addressed a crash as of 7.11.1 when the scope width collapsed.
- Addressed a regression as of 7.12.0 where the cursor's Δt wasn't longer shaded.
- Addressed a crash when computing FFT and some plots are muted.
- Don't longer reset zoom when computing FFT.
- Addressed an issue where not all of a group of plots with the same name were correctly configured.

Triamec.Tam.Core 11.4.0

Bugs

- Fixed a regression as of 11.3.3 breaking firmware download for first generation drives.
- Addressed an issue where the application stops being responsive for a long time after Ethernet disconnect. In particular, the timeout was proportional to the number of plots in the scope.
- Fixed a race condition between USB hot-plug and application tear-down.



TAM Software 7.15.1

Fix two regressions from TAM Software 7.15.0.

Release date: 31.3.2021

Triamec.Tam.UI 7.12.1

Bug

- Addressed a regression as of 7.12.0 where zoom was reset prior FFT.

Triamec.Tam.Core 11.3.4

Bug

- Addressed a regression as of 11.3.3 blocking firmware download for drives with option modules.



TAM Software 7.15.0

This release supports file system tables, a new firmware feature introduced with firmware release 4.11.x.

The software was backported to .NET framework 4.6.2, which should help out some customers to run the TAM System Explorer on some older Beckhoff IPCs running Windows Enterprise 2016.

There were quite some bug fixes stemming from the analysis of crashes reported with the telemetry feature introduced with TAM SDK 7.14.1.

We decided to rename the installer from *TAM SDK* to *TAM Software*, since software development is clearly not its main use case.

Release date: 25.3.2021

Triamec.Tam.UI 7.12.0

Features

- Bode measurements for Gantry mode added.
- Closed loop Bode based on position error now allows measurement during constant motion.
- When changing the line color of the first plot of a y-axis, the y-axis adopts that color.

Change

- Removed sensorless mode Bode as closed loop Bode can be used instead.

Bug Fixes

- Addressed an inconvenience where plots could be sorted by their columns, unexpectedly.
- Addressed a crash in scope auto-load after having used the green cursor.
- Addressed a crash in STD(BW) calculation due to an unexpected imaginary part.

Triamec.Tam.Core 11.3.3

Change

- Tama assembly is always saved in-line with the TAM configuration. The original path is retained for reference only.

Bug Fix

- Address a dead-lock upon device restart as of 10.3.0.

Triamec.Tam.TriaLink 7.12.2, Triamec.Tam.EtherCAT 7.12.2

Bug Fix

- Addressed a crash when using bridge mode and the Tria-Link ring address was unassigned.

Triamec.Tam.Simulation 7.1.3

Bug Fix

- Address an issue as of 7.1.1 where the simulation wouldn't send data logging packets for RLID19 devices.



TAM SDK 7.14.1

This is the first version we deploy a component with the TAM System Explorer gathering anonymous usage and crash data. You will be asked for consent upon application start. If your system can reach the internet and you let telemetry be enabled, you can expect faster reaction to application crashes.

Release date: 15.12.2020

Triamec.Tam.UI 7.11.1

Features

- Experimental anonymous telemetry and crash data using Visual Studio App Center.

Changes

- Δt is now shown on top of the scope when blue and green cursors are shown, instead of in analysis.
- Reduced automatism in cursor analysis function choice to y for the blue, and $y2$ for the green cursor, and only the first time the cursors are enabled.
- Batch update shows a warning when nothing was updated.

Triamec.Tam.Core 11.3.1

Change

- Implemented UDP hole punching in order to increase reliability of data logging and other data from the device over a firewall.

Bug Fixes

- Addressed broken firmware update to TLO300, TLO400 and TLU1.
- Fixed a crash as of 11.3.0 occurring with batch firmware update in presence of Tria-Link PCI adapters.

Triamec.Common 7.3.1

Change

- TAM Configurations are opened with XCopy deployed TAM System Explorer as applicable.



TAM SDK 7.14.0

We introduce an STD(BW) – standard deviation in function of frequency – plot useful to analyze standstill noise. Refer to [the newsletter](#) for more information.

You can now open a TAM configuration (simulated or not) with the most current TAM System Explorer, or with the version specified by the Triamec workspace. Use the topmost context menu entries of the file for this sake.

Release date: 12.11.2020

Triamec.Tam.UI 7.11.0

Features

- STD(BW) - standard deviation in function of frequency - plot useful to analyze standstill noise.
- Second cursor value y_2 shown in plot analysis. Δy and Δt automatically added when second cursor appears.
- The Axis Monitor shows a blinking worker icon while the control system is overridden.

Changes

- Less intrusive Bode when an axis is already enabled. Measuring during coupled motion isn't permitted, though.
- The Tama status indicators have been updated from textual to iconic representations in the Axis Monitor.
- Live view is now enabled by default in the register grid, and the pause button is only shown in advanced mode.
- Reworked various icons in the property pages and some in the scope.

Bug Fixes

- Addressed an inconvenience in the axis module where it was not possible to detach in presence of device errors.
- Address an issue where the FFT plot of a measurement series didn't reuse original formatting correctly.
- Improve error message upon unparsable Bode measurement files.

Triamec.Tam.Core 11.3.0

Change

- Establish side-by-side support of the Ethernet over Tria-Link subsystem with IIS or other web servers. This can be configured by means of the *Ethernet over Tria-Link HTTP proxy port* setting.

Bug fixes

- Addressed a dead-lock upon an attempt to identify a freshly disconnected drive over Ethernet.
- Addressed a long timeout when clicking on the device node in the presence of inaccessible network drives.

Triamec.Tam.TriaLink 7.11.0, Triamec.Tam.EtherCAT 7.11.0

Bug fixes

- Don't crash in front of misaligned data received over USB.



- Don't crash when scanning a surprise-removed NIC.

Triamec.Tam.Simulation 7.1.1

Change

- Address an inconvenience as of 7.1.0 where it got more difficult to install the TAM SDK offline.



Previous Releases

A textual change log of previous releases is deployed with the documentation [2].

References

- [1] "TAM API release notes", SWNET_TamApiReleaseNotes-7.25.0_EP001.pdf, Triamec Motion AG, 2023
- [2] "TAM System Explorer 7.13.1 release notes", SWNET_TamSystemExplorerReleaseNotes-7.13.1_EP001.txt, Triamec Motion AG, 2020

Copyright © 2023
Triamec Motion AG
All rights reserved.

Triamec Motion AG
Lindenstrasse 16
6340 Baar / Switzerland

Phone +41 41 747 4040
Email info@triamec.com
Web www.triamec.com

Disclaimer

This document is delivered subject to the following conditions and restrictions:

- This document contains proprietary information belonging to Triamec Motion AG. Such information is supplied solely for the purpose of assisting users of Triamec products.
- The text and graphics included in this manual are for the purpose of illustration and reference only. The specifications on which they are based are subject to change without notice.
- Information in this document is subject to change without notice.