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catman Easy / AP / PostProcess

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Legend

FUN: functional enhancement
MOD: modification
FIX: bug fix
PRB: known problem

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RELEASEnotes

V5.6.5

Summary

Feature Improvements

- Video cameras: Video replay of MP4 video file format
- Video cameras: Liebherr camera setup in catman
- Remote control of catman via RPC (remote procedure call)
- Zero balancing during DAQ jobs

Important Notes

- Google Play and Apple Store apps are no longer supported.

Supported Windows versions.

- Windows 11
- Windows 10

For more functions, details, modifications and fixes please read below.

FUN506: Video replay: support of MP4 video file format

The video player in analysis project is now also capable of displaying videos in MP4 format. Previously only files in AVI format were supported. MP4 files are far less disk space consuming than AVI files.
For current restrictions in the new video replay function compared to the previous version see PRB5 below.

FUN507: Video cameras: Liebherr camera setup in catman

Port number and streaming IP address for Liebherr cameras can now be set directly in catman and do not need any longer the use of an external camera management software from Liebherr.

FUN508: catman remote control via RPC (remote procedure call)

catman can now be remotely controlled from another PC/software or a PLC running a TCP/IP RPC client.

FUN509: Zero balance control during running DAQ job

It is now possible to perform zero balance control operations during a running DAQ job. The operations can be done via EasyScript or predefined actions of a button object on the visualization panel. Only the standard zero balance method is supported, not the high precision one.

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MOD508: Simplification of sensor excitation type
Selection of bridge sensor excitation types was reduced to "AC" or "DC". The previous list of various excitation frequencies was not necessary since every transducer supporting AC has only a single frequency to work with which is set by the amplifier.

MOD509: Speeding up of CAN raw message decoding
Decoding of CAN raw messages for multiple signals in analysis project has been significantly sped up.

MOD510: MXFS
- The number of decimal places for the wavelength display of MXFS channels was standardized across catman to 5 decimal places.
- The source channel of a computation channel created from an assigned sensor is set to absolute wavelength instead of relative wavelength.

MOD511: GOM camera system
It is now possible to add two different GOM camera systems to the same DAQ project. To do so the working port has to be specified in addition to the IP address in the "Additional devices" dialog.

MOD512: Copy visualization panel to clipboard
It is now possible to copy a picture of a visualization panel to clipboard if the usage of printer pages is not active. Previously this copy function was tied to the general program option for printer pages.

MOD513: Changed default for "Use printer page" option
The default for "Use printer page" has been changed from page usage to nonusage.

MOD514: DAQ job verification for short pre triggers in recorders
DAQ job verification is now checking for very short pre trigger times in recorders.

MOD516: Licensing model picture removed
The licensing model picture in the startup dialog has been removed.

FIX1274: ASCII conversion could overwrite existing binary file
If a standard binary file and a ASCII + header file was produced by a DAQ job, the conversion of the ASCII + header file into standard binary format could overwrite the existing binary file from the job, This did not apply to standard ASCII file format.

FIX1275: UDP: data from auxiliary channels not sent
Data from auxiliary channels filled via EasyScript project was not sent in UDP output. For this channel type only 0 was sent.

FIX1276: SIE file import with CAN raw channel
In SIE file import CAN raw channel timestamps greater than 10000 seconds were imported as a value close to 0.

FIX1277: DAQ job: trigger channel selection lost

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The start/stop trigger channel selection was lost if the type of trigger was changed, e.g. from "Above level" to "Below level".

FIX1278: Computation channel type "Strain gage" with temperature compensation

The result for a strain gage computation with temperature compensation differed slightly from the direct temperature compensation of a strain gage sensor.

FIX1279: Wrong excitation frequency display

The bridge excitation frequency of channels of a QuantumX MX1615B is 1250 Hz but the channel info was showing 1200 Hz.

FIX1280: Sensor database

- Use of invalid special characters in sensor export file names has been prevented.
- Cutting and copying of the "My sensors" sensor group has been prevented. This group is necessary for sensor management and should not be removed or duplicated.

FIX1281: HBK webcam controller service

The HBK webcam controller service was sometimes not ended on closing catman which could result in an error on reopening catman.

FIX1282: Manual merging of cyclic files

File merging resulted in an error if a FastStream file was part of the file list. It is now checked first that no FastStream file is included in the list.

FIX1283: Ticks on right y-axes of graph

The tright axes of a standard graph were sometimes visually messed up by having an impractical large number of ticks.

FIX1284: Custom GUI: visibility of "Break merge" button

The "Break merge" button in analysis project Test Explorer could become unintentional visible if the catman GUI was customized.

FIX1285: Custom GUI: caption of ribbon bar control lost

In some cases the caption of a ribbon bar control could be lost on closing and reopening the custom GUI dialog.

FIX1286: Missing script help pages

EasyScript functions EA_Ribbon.HideRibbon and ShowRibbon had no page in the script help.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

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Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

PRB3: Peak valley online computations and statistical data in visualization objects

Display of statistical data (minimum, maximum etc.) in visualization objects like DAQ table or digit indicator could be incorrect during a running DAQ job in case of peak valley computation channels without the output of these channels synchronized to the output rate of their source channels. It is strongly recommended to use this computation option if you are interested in the display of channel statistics data during the job. Statistics data computed after the job has finished is okay.

PRB4: FTP file upload and computer security settings

Due to security settings on the computer which is running catman, it is possible that the login to FTP servers will fail. It is strongly recommended to use SFTP upload to avoid potential problems.

PRB5: Video replay

The new video player object is currently not supporting single frame steps forward/backward. This functionality is planned for a later version.

PRB6: Frame rate of Liebherr cameras

The default frame rate of the Liebherr cameras is 30 fps but the recorded video file states a frame rate of 25 fps in the header data resulting in an incorrect replay speed. We recommend setting the rate of the camera to 25 fps in the configuration tool of Liebherr to ensure video replay with correct speed.

RELEASEnotes

V5.6.4

Summary

Feature Improvements

- Video cameras: streaming of Liebherr IP cameras started by catman
- New force and torque transducer groups added to HBK sensor database
- Kistler KiRoad: Ethernet connection problems solved
- CANRaw in FastStream files

Important Notes

- Google Play and Apple Store apps are no longer supported.

Supported Windows versions.

- Windows 11
- Windows 10

For more functions, details, modifications and fixes please read below.

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FUN 503: Video cameras: streaming of Liebherr IP cameras started by catman

Streaming of Liebherr IP cameras is now started by catman itself and does not require any longer starting by an external camera management software from Liebherr.

FUN 504: New force and torque transducer groups added to HBK sensor database

New force transducer group U93A and torque transducer group T110/100 added to HBK sensor database.

FUN 505: Print pages made optional

The availability of print pages apart from standard visualization panels is now optional and can be deactivated/activated in the base module section of the function options.

MOD504: Change of script computation GUI in analysis project computation dialog

The script editor for script based computations in analysis project has been moved to a separate dialog.

MOD505: Allowed sequence plans in cyclic long term storage module slightly expanded

Cyclic long term storage module is now allowing sequence plans with uninterrupted storing of full cycles e.g. storing a single cycle with each new cycle.

MOD506: Sensor database: No automatic change of electrical sensor range

Electrical sensor range of an existing sensor in the database is not any longer automatically changed if the physical range is changed by the user unless both electrical range values are 0.

MOD507: Sensor database: New sensor range added to some torque sensor groups

Torque sensor groups T12, T40 and T40B have sensor sub groups added for the missing sensor range of 3 kNm.
Also sensor group T210 has RPM sensors added for transducers with 1024 instead of 512 impulses per round.

FIX1261: Kistler KiRoad: Occassional connection problems

Sometimes an attempt to connect to a Kistler KiRoad device in a new project failed. In addition connection to a KiRoad device for a new project always failed if catman was already connected to the same device in the same session.

FIX1262: CAN raw in FastStream files

A time channel containing the absolute timestamps of the CAN raw messages could not be created from these files. Only time channels relative to the measurement start were possible.

FIX1263: Conversion of large FastStream files

Conversion of large FastStream files (>2GB) could potentially fail with the resulting file being corrupted. This was an intermediate problem introduced with V5.6.3.

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FIX1264: Sensor database: scaling info for some sensors was wrong

RPM sensors in torque transducer group T210 had wrong scaling and signal type info.
Scaling of P2VA1 pressure sensors in sensor database was wrong.
3-wire quarterbridge 1000 Ohm strain gage sensor had an incorrect bridge factor.

FIX1265: Maximum electrical value for sensors with linearization tables

catman could determine an incorrect maximum electrical value if the table scaling had a negative slope, e.g. NTC temperature sensor.

FIX1266: Reference wavelength in optical computations after project loading not available

After DAQ project loading the reference wavelength in optical computations (formula "wvlRef(channel)") returned 0 instead of the wavelength stored in the project.

FIX1267: Excel export: hardware internal scaling info for QuantumX modules missing

Scaling info like linearization table for QuantumX modules which is handled in the hardware itself was missing in the header data section of exported files in Excel format.

FIX1268: Video camera file names

The %Camera% placeholder for test file names could deliver a wrong camera name if the name of the camera was changed in the video settings.

FIX1269: Recorders: Certain error handling was missing

Before DAQ job start it was not checked if the specified saving folder for recorder data files could be created. In addition error status of a recorder was not set if the saving folder could not be created on recorder start.

FIX1270: MQTT

IP port numbers larger than 32767 were not possible.
A run-time error was possible when using the advanced function option of publishing only calculations.

FIX1271: Scan options: Crash on selecting entry in address combobox possible

Catman could crash on selecting entry "Others..." in address combobox.

FIX1272: EasyScript: EA_IO.ReadSensor and EA_IO.WriteSensor

These two commands were sometimes not reading or writing the comment of a sensor.

FIX1273: EasyScript help for EA_DAQ.GetTempStore and EA_DAQ.SetTempStore

Script help had an error concerning start index of values to get or set.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly

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recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

PRB3: Peak valley online computations and statistical data in visualization objects

Display of statistical data (minimum, maximum etc.) in visualization objects like DAQ table or digit indicator could be incorrect during a running DAQ job in case of peak valley computation channels without the output of these channels synchronized to the output rate of their source channels. It is strongly recommended to use this computation option if you are interested in the display of channel statistics data during the job. Statistics data computed after the job has finished is okay.

PRB4: FTP file upload and computer security settings

Due to security settings on the computer, which is running catman, it is possible that the login to FTP servers will fail. It is strongly recommended to use SFTP upload to avoid potential problems.

RELEASEnotes

V5.6.3

Summary

Feature Improvements

- Loading projects with multiple cameras
- Improvements to MQTT topics
- Improved data displays in certain scenarios

Important Notes

- Google Play and Apple Store apps are no longer supported.

Supported Windows versions.

- Windows 11
- Windows 10

For more functions, details, modifications and fixes please read below.

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FIX1258: Loading project with multiple IP cameras

If a DAQ project was loaded that contained two or more IP cameras, the cameras were not ready to capture after loading but had to be first reconnected in the video camera configuration tab. This did not happen in projects with a single IP camera or with multiple USB cameras.
Note: this applies only to the standard video camera server system introduced in V5.6.1 and not the legacy system.

FIX1259: Some trace data info missing in converted Fast-Stream files

Standard catman binary files that were created by conversion of Fast-Stream files were missing some channel traceability data e.g. CAN raw or sensor serial number.

FIX1260: MQTT topics dialog not opening

In rare cases the "MQTT Topics" dialog could not be opened.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

RELEASEnotes

V5.6.2

Summary

New general functions

- introducing support for MQTT
- improved canraw decoding
- Various improvement for MXFS

Important Notes

- Google Play and Apple Store apps are no longer supported.

Supported Windows versions

- Windows 11
- Windows 10

For more functions, details, modifications and fixes please read below.

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FUN502: MQTT data streaming

MQTT is a lightweight, publish-subscribe, machine to machine network protocol. The MQTT protocol defines two types of network entities: a broker and a number of clients.
An MQTT broker is a server that receives all messages from the clients and then routes the messages to the appropriate destination clients. An MQTT client is any device (controller, PC, server) that runs an MQTT library and connects to an MQTT broker over a network. In this case, catmanAP is running as an MQTT client.

MOD495: Decoding of CAN raw messages sped up

Decoding of CAN raw messages in Test Explorer was sped up in case of large signal lists with not all signals being found in the CAN raw channel.

In addition a new progress bar gives feedback about the state of decoding and the decoding can be aborted by the user

MOD496: Absolute time stamp in CAN raw channel export to Vector CANalyzer log

Export of CAN raw channel data into Vector CANalyzer log file is adding absolute time stamp to header in the expected time format.

MOD497: Support for import of ARXML V4.3 files

Sensordatabase is now supporting the import of CAN signals from ARXML files of version 4.3.

MOD498: Import of ARXML files sped up

Import of CAN signals from ARXML files into sensordatabase was sped up.

MOD499: MXFS

- Speed mode of module is now configured on project load if necessary.
- Optical board info added to device property display.
- Provision of default calibration factor values if sensor type is changed in direct hardware edit.

MOD500: Web server port configurable

Send port of the catman web server can now be configured. Previously port 80 (HTTP port) was fixed in use but is still the default port.

MOD501: Switching sample rate domain of QuantumX module

Switching sample rate domain of a QuantumX module is not any longer requiring to end the current session of catman for rebooting the module. The module reboot can be done from within the running session.

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MOD502: New default format for unit display on graph axes

Default format for unit display on graph axes was changed from "[unit]" to "in unit" e.g. from "[V]" to "in V".

FIX1239: DAQ job start trigger with pre-trigger and burst mode

In a DAQ job with start trigger, pre-trigger and burst mode only the pre-trigger time of the first burst was stored if also a stop trigger or job stop by weekday or time of day was in use.

FIX1240: Remote data storage to SFTP server

Some SFTP servers refused the upload of data due to encryption routines being used to secure the connection not being up to date.

FIX1241: Import of signal units from ARXML files

Import of CAN signals from ARXML files of version 4.2 into sensordatabase was not importing signal units.

FIX1242: Wrong icon in sensordatabase

Sensordatabase displayed the icon for optical strain sensors for FS22 optical acceleration sensors.

FIX1243: Assignment of sensors with tabular scaling failing

Assignment of sensors with tabular scaling failed on QuantumX modules of type MX1601 and MX1615 (modules which do not support tabular scaling in hardware). This was an intermediate bug introduced in V5.6.1.

FIX1244: Wrong warning on sensor assignment

Sensor assignment on a MX1601 could throw an incorrect warning concerning sensor and module supply voltage.

FIX1245: Sensor adaptation: wrong sensor type shown

For counter sensors on MX840 modules the sensor adaptation dialog displayed the wrong sensor type.

FIX1246: Wrong sample rate list in sample rate and filter dialog

The sample rates and filters dialog contained the wrong list of sample rates if the switch from classic to decimal data rate domain in a project with QuantumX modules was aborted because a module with A hardware platform was detected (decimal sample rates not supported).

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FIX1247: Channel list: incorrect sync-state display

QX device sync state displays were not updated if the states changed due to configurations done in the time synchronization services dialog.

FIX1248: MXFS: reference wavelength not stored in project

In some cases the new reference wavelengths of channels were not stored in the project after performing a reference wavelength reset.

FIX1249: y(x) graph in date/time mode

Display of data from new files (created this year) could fail in y(x) graphs utilizing a x-axis in date/time formatting. This fix concerns only the graph object. Data files itself are all right.

FIX1250: Flex table showing wrong min/max values

It was possible that the display of channel min/max values could be confused if more than one flex table was in use.

FIX1251: Cloud data streaming

- Manually provided streaming value was not used for InfluxDB and for PowerBI it could get lost under certain circumstances.
- Panel name instead of title now being used to identify indicator objects (title is not necessarily unique).

FIX1252: Push notification GUI in event monitoring dialog

Event monitoring dialog had retained some GUI for push notifications despite these not any longer supported since V5.6.1.

FIX1253: Incorrect temporary data storage recovery prompt after crash in running session

Depending on general options catman could prompt for the recovery of the temporary data storage after the previous session crashed even if a DAQ job with parallel recorders was running. In that case the temporary storage is never used.

FIX1254: Class counting computation type "Span pairs" has empty class

The first class of the class counting type "Span pair" was always 0.

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FIX1255: CAN raw decoding: negative values for UINT64 signals

Decoding CAN raw signals of type UINT64 could deliver negative values. These signals are now not decoded (catman does not fully support type UINT64).

FIX1256: Duplicating panels on test load

Duplicating of existing panels on test load was incorrect if an analysis project was loaded that already contained duplicated panels. In that case all panels were duplicated and not just the original ones.

FIX1257: Analysis project: assignment of DAQ channel to histogram

In that case the wrong computation could be assigned if already a computation had been created from that specific source channel.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

RELEASEnotes

V5.6.1

Summary

New general functions

- introducing a new server system for recording of video files.
    - For existing projects the legacy video camera system is still available
- Improving sensor wiring diagrams
- New torque transducer groups T40MS and T210 added to HBK sensor database.
- Various improvement for MXFS

Important Notes

- Google Play and Apple Store apps are no longer supported.

Supported Windows versions

- Windows 11
- Windows 10

For more functions, details, modifications and fixes please read below.

RELEASEnotes

FUN500: Ready to use with new optical module MXFS SI

The MXFS familiy of modules for measuring mechanical quantities based on optical wavelength changes of light in a glass fiber will be expanded with the upcoming SI module for static applications (e.g. monitoring). The new module allows more channels to be monitored at a higher resolution.

See topic "Data acquisition with the QuantumX optical module MXFS" for more info.

FUN 501: New torque transducer groups added to HBK sensor database

New torque transducer groups T40MS and T210 added to HBK sensor database.

MOD483: Cloud Data Streaming Console: support of InfluxDB V2 and SSL

Data streaming to an InfluxDB database is now supporting SSL encryption with token authentification. In addition InfluxDB databases of format V2 are supported.

MOD484: UDP output: channel list selectable by user

The user can now select the measurement channels to be included in UDP output. Previously all channels were included in the output.

MOD485: CX27C EtherCAT: maximum number of channels increased

Maximum number of EtherCAT channels per CX27C module is increased to 100.

MOD486: Help display in standard browser

The catmanEasy/AP and sensordatabase web help is now displayed in the default browser installed on the PC instead of a catman window.

MOD487: Support for 3rd polynomial coefficient of optical temperature and generic sensors

catman now supports the 3rd polynomial coefficient of optical temperature and generic sensors introduced with MXFS firmware 4.46.

MOD488: Handling of MXFS sped up

Handling of QuantumX MXFS module sped up to some extent (e.g. update after configuration of bands on a connector).

MOD489: Scaling of QuantumX modules

QuantumX modules of type MX411 and MX438B added to list of modules supporting table scaling in hardware.

MOD490: Analysis project: Butterworth low-pass filter 2nd and 4th order

Butterworth low-pass filters in analysis project now support also 2nd and 4th order. Previously only 8th order was possible.

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MOD491: Test file info extended

High or low speed mode info of QuantumX modules of type MX410, MX411, MX403 and MXFS are now part of the test file.

MOD492: Video playback object default file folder

The default file selection folder of the video playback object in analysis project is now the target folder of the last video recording in the same session.

MOD493: VNC viewer for remote connection to CX22B

VNC viewer is installed for remote connections to CX22B with firmware 5.5.3 or higher.

MOD494: GNSS SAT_TIME decimal places

Decimal places for GNSS channel "SAT_TIME" were increased to 2 for a better resolution.

FIX1229: CAN raw data recording

In rare cases packets of CAN raw data could be dropped in recording. Especially if recording rate of standard channels was quite low (around 10 Hz).

FIX1230: Loading project with QuantumX MX471

Some channels of a MX471 could display initialization errors after project loading if the option "Use current configuration" was set for CANbus in the options for new projects.

FIX1231: Computation channels: channel status LED after modification

The channel status LED of a computation channel sometimes showed an incorrect status after modification.

FIX1232: Optical computation channel

TCS value of an optical strain computation value was incorrectly displayed in case of the source channel being from a QuantumX MXFS module.

FIX1233: Filter settings changed on all subchannels of connector

Changing the filter settings on the first subchannel of a connector (e.g. on a MXFS DI) was always changing the settings on all subchannels of that connector. This should happen only if the the specific channel group is collapsed in the channel configuration table.

FIX1234: Event monitoring action "send EMail"

This action failed with some mail providers using SSL encryption.

FIX1235: Min/max display in single point indicators

Minimum and maximum value display in digital indicators, analog and bar meters was sometimes wrong.

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FIX1236: Graph zoom with large datasets

Zooming into a graph in analysis project displaying a plot with a large dataset (> 5 million values) resulted in an incorrect zoom section if the dataset was stored in float or integer format (default format is double).

FIX1237: DataView: zoom range after changing x-axis time unit

After changing the x-axis time unit of a zoomed graph in DataView, the displayed zoom range was incorrect.

FIX1238: EasyScript function EA_Comm.TIME_GetSystemTime

This function failed in locales other than german (e.g. english Windows settings) and delivered UTC time instead of system time if functioning.

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RELEASEnotes

V5.5.3

New general functions

- Receiving EtherCAT signals from an EtherCAT master
- Read HBK strain gauges into the sensor database with a simple scan
- Overload detection for signals from QuantumX/SomatXR modules
- Selection of available sample rates for QuantumX/SomatXR modules
- New stop triggers for specific times daily or on certain weekdays
- DAQ project computation types "static and dynamic"

Supported Windows versions

- Windows 11
- Windows 10
- Windows 8.1

For more functions, details, modifications and fixes please read below.

RELEASEnotes

FUN 493: Creating sensors via barcode/QR code scan

Beginning with strain gages (single strain gages and rosettes) new sensors can be created in the sensor database by scanning the QR or barcode delivered together with HBK strain gages. The scanned parameters also include temperature compensation info which can be used automatically later on in setting up the compensation in sensor adaptation.

FUN 494: QuantumX channel overload detection

Analog input channel overload detection of QuantumX/SomatXR modules can be configured to go into "overflow" already at leaving sensor range instead of leaving amplifier range or to show a warning in live update if sensor range is left but not channel range. Related to this is the addition of configurable electrical sensor range info in sensor database and sensor adaptation.

FUN 495: Support of CX27C EtherCAT Out channels

Catman supports recording of up to 64 EtherCAT Out channels on the QuantumX/SomatXR CX27C. Channel setup has to be done in a EtherCAT studio (e.g. TwinCat) and MX Assistant. catman is only acting as a recorder for this channel type.

FUN 496: New DAQ job stop conditions

DAQ job stop conditions "Weekday" and "Time of day" are added to stop the measurement either at specific weekdays at a certain time or every day at a specific time interval.

FUN 497: DAQ project computation types "static and dynamic"

Filter computations in DAQ project have been extended by the addition of computation types "static and dynamic" which are useful for vibration analysis.

FUN 498: Sensor database: added sensor "SCM strain gage"

Sensor type "SCM strain gage" has been added to the sensor database. Intended for programming of TEDS for strain gages connected via SCM module to a QuantumX module.

MOD472: QuantumX/SomatXR: sample rates supported by modules in project

The dialogs for specification of sample rates now have an option to list only sample rates supported by the modules currently in the DAQ project. Requires new firmware 4.40.10.

MOD473: Statistics journal

- Additional saving option "Range" (maximum - minimum of interval) was added.
- Additional backup options every 3, 6 or 12 hours.

MOD474: Recorders.

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- Data automatically written from write cache to file every 5 minutes if not flushed earlier to prevent loss of larger data amounts in case of unexpected program termination by power loss and very low recorder update rates (< 1 Hz) with few channels.
- Recording duration and file size info also updated in recorder console during post-trigger phase.

MOD475: MX highspeed mode

Context menu entries for activating/deactivating MX highspeed mode now only available for QuantumX modules supporting this functionality (MX410, MX411, MX403, MXFS) and current state of the channel is made visible by enabling and disabling relevant menu entries.

MOD476: Auto filter characteristic

Instead of always using Bessel filter characteristic, Butterworth characteristic might be chosen for very high sample rates if filter characteristic is set to "Auto".

MOD477: Limit value/event monitoring script actions

Period of "0 seconds" between script actions now supported which means one script action per read block can be executed.

MOD478: Adding panels for new tests

Test parameters in tables and text objects now also adapted to new test.

MOD479:More info supported by flex table in analysis project

Flex tables in analysis project now also support display of slot and plot default color info of channels.

MOD480: Sensor database: GUI change for CAN signals

General info now accessible for CAN signals. Allows setting of info like manufacturer or serial number for CAN sensors.

MOD481: GUI changes

- "Master/slave" replaced with "leader/follower"
- UUID of QuantumX modules displayed without the leading "9E5" since this is part of all modules. The same is already done in MX Assistant.

MOD482: EasyScript functions

- Plot styles "best fit" and "spline" added to EA_Graph.SetPlotProperty and GetPlotProperty.
- Optional parameter "Quality" added to EA_Panel.SavePanelToJPEG to control compression factor of image.

FIX1205: Recorders: unexpected data file in unattended test mode

If a recorder job was set to unattended test mode, the recorder base job also created a data and test file.

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FIX1206: Excel and ASCII + header export: header data partially overwritten

In case of channels using linearization table scaling with many data points parts of the header data could be overwritten by measurement data.

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FIX1207: Matlab export: automatic file name counter limited to 999

The automatic file name counter of Matlab export was limited to 999. Further data exports were overwriting previous export files.

FIX1208: Test Explorer: file and DAQ comments not shown

Data file and DAQ comments were not shown if the data file was recorded in a different catman language version as the one used to display the test now.

FIX1209: Crash on removing test from Test Explorer

The removal of a test from Test Explorer while the export list contained channels could lead in very rare cases to a crash.

FIX1210: Possible crash on SIE file import

In rare cases with unusually large internal file block sizes catman could crash on trying to import a SIE file.

FIX1211: DAQ job settings GUI issues

Bit list could become unintentionally visible after switching start/stop trigger mode to digital input.

FIX1212: Peak storage mode: low precision of update interval

Update interval of DAQ job peak storage mode had a low precision. Especially the first interval could be shorter than specified in job settings.

FIX1213: Algebraic computation editor in DAQ project

Button "pi" did not assign the correct phrase to the formula.

FIX1214: Importing CAN DBC into sensor database

Import of a CAN signal from a CAN Vector DBC file could fail if the signal comment was too long.

FIX1215: Creating new piezo passive sensor in sensor database

Sometimes an error message was thrown on creating new piezo passive sensor.

FIX1216: Visualization object transparency

Visualization objects sometimes lost transparency setting.

FIX1217: Visualization object combo box: text visibility problems

Selected text of combo box objects could become invisible on switching between panels.

FIX1218: CAN raw table and invalid CAN raw signals

In rare cases trying to display an invalid CAN raw signal in a CAN raw table

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FIX1219: Inserting row or column into table object

Content of the last row or column was deleted if another row or column was inserted into the table.

FIX1220: Graph section tool

- Point index going one value too far at the end of the plot (caused minimum to be -1000000).
- Section limit values were given in current time unit of x-axis but the unit label was always "s".
- x-axis time unit "Point index" was not handled.

FIX1221: Dynamic compression of real-time graphs not working

The dynamic compression of real-time graphs with large time windows and slow sample rates did not work properly if the x-axis time unit was other than seconds. In that case the specified time window was never used.

FIX1222: DataView and removing of tests and computations

DataView columns were not removed if source test or computation was removed with the option to remove display sources.

FIX1223: DataView data edit mode

Data was already changed in the file if the user was just double clicking a data table cell. Changes in cells displaying data in date time mode were not prevented (not supported).

FIX1224: EasyScript function EA_Panel.SavePanelToJPEG

Picture area was wrong for printer pages.

FIX1225: EasyScript function EA_IO.IsDeviceLost

EA_IO.IsDeviceLost did not work during a running DAQ job.

FIX1226: EasyScript EA.MessageBox: text truncated

Message text area could be too small which caused the text to be truncated.

FIX1227: EasyScript EA_Panel.SetObjectState: visibility state not stored

Visibility state of objects set by EA_Panel.SetObjectState were not saved in a project.

FIX1228: Possible crash in automatic execution stage dialog for EasyScript

In very rare cases a crash could happen on opening the EasyScript automatic execution stage dialog.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase

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the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

RELEASEnotes

V5.5.2

Summary

New general functions

- Offering evaluation mode for catman AP (25 starts)
- Improving sensor wiring diagrams
- Improving spectrogram and statistic journal
- Various improvement for MXFS
- Modified documentation for data streaming to InfluxDB

Important Notes

- Since catman 5.5.1 support for following devices has stopped:
  - USB driver and COM port for MGCplus
  - CANHEADdirect
  - eDAQ (+ TCE preview)
- MGCplus CP22 support in catman will be phased out within the next 21 months.
- MXFS gateway functionality is not supported: Please switch it off with MX assistant before using MXFS with catman.

Supported Windows versions

- Windows 10
- Windows 8.1

For more functions, details, modifications and fixes please read below.

RELEASEnotes

FUN 492: Evaluation mode for catmanAP

The full catmanAP functionality can now be tested up to 25 times before requiring a license similar to the optional catmanEasy packages.

MOD471: PostProcess license not version dependent

catman PostProcess licenses are no longer depending on program version i.e. licenses from version 5.4 and upwards are now accepted for the current and future catman versions.

MOD472: Sensor wiring diagram in strain gage configuration dialog

Display of sensor wiring diagrams introduced with V5.5.1 in sensor adaptation dialog has been extended to the strain gage configuration dialog. More diagrams were also added to the sensor adaptation dialog.

MOD473: Sensor database: optical sensor group restructured

Sensors in the optical sensor group have been divided into two further subgroups: sensors for FS22 and MXFS respectively.

MOD474: Optical sensor dialog rearranged

Optical sensor configuration dialog has been rearranged to be more similar to the MXFS channel configuration dialog without sensor assignment.

MOD475: Creating computation channel from sensor

Creating the computation channel is now also taking into consideration if the channel with the assigned sensor is also adapted.

MOD476: Statistics journal

- Timestamps can be optionally saved in UTC time format.
- Journal files created by recorders are now containing only entries from the running time of the recorder.

MOD477: Factory reset of MXFS module

Factory reset of QuantumX MXFS module is now setting all channels to relative wavelength.

MOD478: Switching MXFS speed mode

Switching the speed mode of a QuantumX MXFS module has been sped up and the user gets more feedback during the switching operation.

MOD479: Spectrogram

- Saving to BMP file and printing implemented.
- Handling of frequency and color range scale in configuration dialog reworked.

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- Some smaller enhancements/fixes done.

MOD480: EasyMath: interpolation of dataset to new sample rate

Interpolation of a channel to a new sample rate was limited to several million samples in the resulting dataset. This has been expanded to the upper channel length limit of 2 billion values in catman.

MOD481: Hardware description in channel configuration and info table

Distinction is made between QuantumX and SomatXR modules.

FIX1191: Corrupted test files created by recorders

Test files created by recorders could be corrupted if all three sample rate groups were used in a recorder measurement.

FIX1192: CAN channel names after project load

CAN channel names could potentially being corrupted after project load if the scan option to "refresh CAN signal list on project load" was set.

FIX1193: Zero balance value of MGCplus strain gage channel

In some cases existing zero balance values of MGCplus channels with strain gage scaling could be wrong if the gage factor of the channel was changed.

FIX1194: Check of requested filter setting

Checking requested filter settings was not reporting "Filter off" as invalid for QuantumX MX1609 modules.

FIX1195: Invalid control in zero balance ribbon group

The zero balance ribbon group was sometimes displaying a "Reset wavelength" control that should be visible only in a project containing QuantumX MXFS modules.

FIX1196: Creating computation channel from sensor

This failed for some sensors from the current HBM sensor database.

FIX1197: Setting MXFS to highspeed mode

Setting a QuantumX MXFS module to highspeed mode was deactivating connectors 3 and 4.

FIX1198: MXFS: changes to connector

In rare cases changes to the connector of a QuantumX MXFS module could be applied to an additional connector on top of the intended one.

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FIX1199: MXFS: zero balancing of temperature compensated channels

In rare cases the zero balance value of a temperature compensated strain channel could be a bit off.

FIX1200: MXFS: invalid warning message on creating new project

An invalid warning message could be thrown on creating a new DAQ project with QuantumX MXFS modules if the scan option to not touch sample rates and filters was set.

FIX1201: TDMS export: traceability data

The traceability data in TDMS export was wrong for channels from QuantumX MXFS modules.

FIX1202: Data streaming to Influxdb in Cloud Data Streaming console

The description of the necessary configuration file in the Power BI knowledge base article was incorrect and not working. An example file is now also provided in the "Examples" folder of the catman installation.

FIX1203: Status icon in channel configuration table

Status icon of channels switched to electrical measurement sometimes changed during live update of the table.

FIX1204: Extended device header name in EasyPlan

The extended device header name in the channel configuration table of EasyPlan could be wrong for QuantumX/SomatXR modules.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

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RELEASEnotes

V5.5.1

Summary

New general functions

- Import of CAN signals from Autosar ARXML files
- Automatic duplication of visualization panels on loading further tests
- MX471C bus load monitoring
- Export of CAN raw channel data to Vector binary logging format (BLF)
- New force transducer groups added to HBK sensor database (U10F and C5)
- Online help in new format
- New GNSS (called GPS before) channel to display number of satellites in view
- Updating CAN signals in sensor database
- Statistics journal update during pre-trigger time
- EasyPlan: modification of "New device" dialog

Important Notes

- catman 5.5.1 does not support any longer:
  - USB driver and COM port for MGCplus
  - CANHEADdirect
  - eDAQ (+ TCE preview)
- MGCplus CP22 support in catman will be phased out within the next 24 months.
- MXFS gateway functionality is not supported: Please switch it off with MX assistant before using MXFS with catman.

Supported Windows versions

- Windows 10
- Windows 8.1

For more functions, details, modifications and fixes please read below.

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FUN 487: Import of CAN signals from Autosar ARXML files

In addition to CAN databases CAN signals can now be imported into the sensor database from industry standard Autosar ARXML files. Supported are ARXML files in format 3.2.3, and 4.0 and upwards.
Currently unsupported for import from ARXML are mode dependant signals.

FUN 488: Automatic duplication of visualization panels on loading further tests

Loading further tests in analysis project can now automatically duplicate visualization panels which are connected to the first loaded test and exchange display sources to point to channels which are existing in the new test as well. Display sources pointing to channels which are not any longer present in the new test are removed.

FUN 489: MX471C bus load monitoring

The bus load of QuantumX/SomatXR MX471C modules can now be monitored in the project configuration phase.

FUN 490: Export of CAN raw channel data to Vector binary logging format (BLF)

CAN raw channel data can now be exported in DAQ and analysis project into Vector binary logging format (BLF). Currently unsupported are signals in 64 bit unsigned integer raw data format.
CAN raw channels have been removed instead from export into various formats other than catman binary like Excel or S3T since these file formats could not handle this channel type.

FUN 491: New force transducer groups added to HBK sensor database

New force transducer groups U10F and C5 added to HBK sensor database.

MOD446: Import of DAQ jobs, visualization and events in addition to existing ones

It is now optional to import DAQ jobs, visualization panels and limit values and events from another project in addition to the existing ones. Previously existing DAQ jobs, panels etc. were always replaced by the imported one.

MOD447: QuantumX + MGCplus hybrid systems

Hybrid DAQ projects containing QuantumX modules and MGCplus devices are allowed without restrictions. QuantumX modules can be added to an existing hybrid system.

MOD448: Pre-trigger in Fast-Stream format

The Fast-Stream data saving format is now also supporting the use of pre-trigger.

MOD449: Online help in new format

The catman help has been changed into a web help format.

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Tech notes have been moved from local installation to the HBK web page.

MOD450: NMEA compatible GPS

- Support of NMEA 4.1 UDR data for more precise positioning
- Added new channel to display number of satellites in view (from GGA command).
- GPS generally renamed to GNSS.
- Unit for unitless channels like "Number of satellites" changed to being completely empty. Was previously "---".

MOD451: Updating CAN signals in sensor database

Importing CAN databases which were already imported into the sensordatabase gives the user now two options: either the existing entries can be updated (importing new signals, updating existing ones, deleting those which are not any longer part of the CAN database) or the database is imported entirely into a new sensor database entry.

MOD452: Changes to GUI in sensor database tab

Some changes were done to the ribbon bar on sensor database tab. Groups for creating new sensors and CAN signals, to import sensor databases CAN databases or single sensors and updating selected sensors. Some icons were exchanged.

MOD453: More precise pre-trigger time in parallel recorders

Depending on recorder settings the pre-trigger time in parallel recorders could be shorter than the time specified in the configuration (up to one third shorter than the configured time). Pre-trigger time as configured is now completely in recording unless the trigger event comes before pre-trigger time is fully elapsed (in contrast to default DAQ jobs trigger monitoring in recorders starts immediately and not only after pre-trigger is completely filled up).
This relates to known problem PRB3 in the last catman version.

MOD454: Scan options: device type selection based on allowed combinations

Device types in scan options dialog are grayed out if they are not allowed to be combined in a DAQ project with the device types in the current selection e.g. PMX grayed out if any other device type is selected (PMX not allowed to be mixed with other types).

MOD455: Strain gage temperature compensation extended

Temperature compensation of strain gages via compensation polynomial extended by addition parameter "Alpha gage factor" since the gage factor itself is also temperature dependant.

MOD456: Cyclic TEDS scan

Live update in channel table with cyclic scan for connected TEDS sensors can now be activated as well in the sensor group of the ribbon bar.

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MOD457: Automatic assignment of new sensor in sensor adaptation

If a new sensor is created from the current adaptation and the option to use sensor name as channel name is set, the new sensor is automatically assigned to the currently selected and adapted channel.

MOD458: User defined TEDS ID in trace data display

Channel info in DAQ project and channel property display in Test Explorer now displaying user defined TEDS ID if available.

MOD459: Automatic script start in unattended test mode

In unattended test mode EasyScripts assigned to a project are automatically started at project load.
Also no check for a newer sensor database in the application directory is done in that mode and some more potential messages have been suppressed

MOD460: Statistics journal update during pre-trigger time

Statistics journal now also containing values from the pre-trigger time.
In addition including all channels in statistics journal if the journal is activated is now also including hardware channels active at the time of journal activation (corresponding sample rate group in use on the device).

MOD461: Channel T0 in data files

Pre-trigger time is now taken into consideration in setting T0 of a channel. Previously T0 was set to time of start trigger occurrence.

MOD462: Handling of invalid signals in CAN raw

- Display in CAN raw table: previously an entire block of data (possibly severeal dozen lines) was not displayed. Now invalid signals are displayed in the table as empty lines but clearly marked as invalid.
- CAN raw ASCII export: previously export was aborted entirely if an invalid signal was encountered. Invalid lines are now just ignored and export continued afterwards.

MOD463: CAN raw decoding in Test Explorer

- Status info and progress bar added to decoding.
-"Decode all signals" checkbox synced with signal selection.

MOD464: Channel check

- Provided more precise nominal unbalance values for quarter bridges on MX1615B and MX1616.
- Display of nominal unbalance values fixed to 4 digits after the decimal point.

MOD465: Export of analysis project class counting computations

Class counting computations created in analysis project can now be exported. This was previously only possible for class counting computations from a loaded test.

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MOD466: File history in empty project

The main menu file history is now also available in case of starting catman with an empty project (no hardware).

MOD467: EasyPlan: modification of "New device" dialog

- Device type field split up into "Device type" and "Module type" for QuantumX and optical instruments.
- QuantumX and SomatXR split up into different device types to allow display of appropriate wiring diagram in sensor adaptation.
- Small changes in handling inside the dialog.

MOD468: Watchdog activation

Watchdog functionality (if enabled) now remaining active between repeated DAQ jobs or between DAQ jobs if all jobs are executed in a row. It was previously only active during a running DAQ job.
Also starting watchdog in EasyScript did not work if it was not already enabled in the registry.
In very rare cases watchdog could restart catman on DAQ start even if it was still responding.

MOD469: Closing license structure info window

catman license structure info window in startup dialog can now be closed via Escape button.

MOD470: Additional wiring diagrams in sensor adaptation

Wiring diagrams for some more sensor types are displayed in the sensor adaptation dialog

FIX1169: Wrong DAQ status info "recording time left"

The amount of recording time left based on disk space was sometimes calculated wrong for saving in FastStream in case of triggered or periodic measurements and generally in case of many computation channels being in the project.

FIX1170: Crash on creating computations from sensor settings

A crash could occur on creating a very large number (several hundred) of computations from sensor settings.

FIX1171: Importing CAN signals from DBC file

CAN signals from some DBC files could not be imported due to text file formatting.

FIX1172: Min/max values not set on assignment of CAN signals

The CAN minimum and maximum values were not set on assigning a CAN signal to a QuantumX module.

FIX1173: MX840 CAN connector "Listen only" mode

Setting the "Listen only" mode of the QuantumX MX840 CAN connector did not work.

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FIX1174: Too many channels on MX840 CAN connector

Regardless of option settings the QuantumX MX840 CAN connector had the maximum 128 channels if the second CAN connector in the scan options was set to "CAN raw only".

FIX1175: Corrupt DAQ project

In very rare cases the DAQ project could become corrupt if periodic project backup was activated and EasyScript used.

FIX1176: Reset of trigger channel

Switching DAQ job start or stop trigger type between level and edge trigger was unnecessarily resetting the trigger channel.

FIX1177: Linearization table computations

- Analysis project: values outside of minimum and maximum range of table points were not correctly scaled.
- DAQ project: in rare cases computations with a very large number of points the last points were not taken into consideration for scaling. Also removing lines from the configuration table was decreasing the total number of lines available.
- Sensor adaptation: table restricted to 32 points since this is the maximum supported.

FIX1178: Strange values in statistics journal

If regular backup of statistics journal was used the journal sometimes contained a single row with invalid data. Other rows in the journal were okay.

FIX1179: Wrong floating panel duplicated

Duplicating a floating panel was always duplicating the last floating panel and not the selected one.

FIX1180: Polar diagram compass rose inverted

Compass rose display of the polar diagram was inverted i.e. East and West were swapped.

FIX1181: Standard graph, second x-axis

- Auto scaling differed from first x-axis.
- Some plot and axis properties were not properly handled (plot style changing to scatter plot, plot area color etc.).

FIX1182: Clearing of CAN raw table

After removal of the display source from a CAN raw table, some values were still visible in the table and could only be removed by scrolling around.

FIX1183: DataView: cursor control bar not shown

The cursor control bar to in DataView was not displayed.

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FIX1184: Autosequences: panel objects not listed

Panel objects were not listed in configuration dialogs if name and title of panel were different (default is both being the same).

FIX1185: Update of display source properties after test replacement

If a test in analysis project was removed and replaced by another one, display source dt and T0 of channels belonging to these tests were not updated.

FIX1186: Assigning of channel properties to table cell not working

Assigning channel properties to a table cell in analysis project was sometimes not working in case of computations.

FIX1187: Confusing warning message when selecting a channel in analysis project

In rare cases a completely unrelated warning message was displayed if a channel was clicked in the channel selector of the visualization.

FIX1188: Strange sensor info after removing device in EasyPlan

After removing a device in EasyPlan devices following the deleted one in the project sometimes displayed wrong sensor info in the channel configuration table (e.g. MX471 CAN channel displaying sensor info for a MX1615).

FIX1189: EasyScript EA_Panel.LockPanels

Effects differed from locking caused by manually switching the GUI from design to execution mode.

FIX1190: EasyScript: display of catman message box

Displaying a catman message box (EA.MessageBox) modally did not work if a message box displayed non-modally was still open.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

PRB4: MXFS gateway functionality not supported

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The function of the MXFS to serve as a gateway for other QuantumX/SomatXR modules is not supported in the current version.

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RELEASEnotes

V5.4.2

Summary

New general functions

- Data saving in two formats supported
- Wiring diagrams shown in sensor adaption dialog
- Sensor data base update with some Brüel & Kjaer sensors
- Simplification of license structure

Important Notes

- Catman 5.4.2 supports for the last time:
  - USB driver for MGCplus
  - CANHEADdirect
  - eDAQ (+ TCE preview)
- MXFS gateway functionality is not supported: Please switch it off with MX assistant before using MXFS with catman.

Supported Windows versions

- Windows 10
- Windows 8.1
- Windows 7

For more functions, details, modifications and fixes please read below.

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FUN 482: Data saving in second export format

DAQ job settings now support a second export format into which measurement data is automatically saved in addition to the primary format. It is for example possible to save the data after the job into both catman standard binary and ASCII format without the need to perform the second export manually or by script. All export formats are supported, the two formats just have to differ.

FUN 483: Wiring diagrams in sensor adaptation dialog

The sensor adaptation dialog is now displaying for most supported sensor types of QuantumX, MGCplus and PMX diagrams which show the wiring of the sensor on the hardware specific connector in detail.

FUN 484: Sensor database: support of BKSV accelerometers and microphone

The sensor database integrates the following BKSV sensor types:

- Accelerometers 4533-B/4534-B series (single axis)
- Accelerometers 4535-B series (triax)
- Microphone type 4966-H-041

FUN 485: Simplification of license package structure

Several additional license packages are not any longer available and their functionality has been moved either into catmanEasy or catmanAP.

The following package functionality has been moved into catmanEasy basic:

- EasyPlan
- EasyOptics
- EasyMonitoring except parallel recorders

The following package functionality has been moved into catmanAP:

- EasyVideocam
- EasyRoadload
- Parallel recorders from EasyMonitoring

EasyMath and EasyScript remain unchanged.

FUN 486: EasyScript: New functions

Functions to export the data of a single channel (EA_DAQ.ExportChannelData)) or multiple channels (EA_DAQ.ExportMultipleChannelData) from the temporary data storage into an ASCII file. These functions correspond to similar functions in EA_Test which work on channels loaded in the Test Explorer of an analysis project.

MOD434: Copy, paste and delete visualization objects via keyboard

Visualization objects can be copied, pasted and deleted with the known key combinations CTRL+C, CTRL+V and DEL respectively.

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MOD435: Optical instruments in additional devices dialog

Information about optical instrument subtype (e.g. FS22SI or DI) moved from separate listbox into main device type listbox.

MOD436: Scan options dialog: additional devices

If a new additional device is created the checkbox for integrating additional devices into new DAQ projects is automatically selected.

MOD437: Renaming DAQ job or recorder

DAQ jobs and recorders can now be renamed via context menu of DAQ job list.

MOD438: Test parameter placeholders in name of recorder files

Test parameters of the base job are now available as placeholders in the name of recorder files.

MOD439: DAQ job validation in settings dialog

Doing a manual DAQ job verification in the DAQ job settings dialog is now not only checking for less than optimal job settings but also for critical errors which would prevent job execution at all. Previously this check was only done on leaving the dialog or starting a DAQ job directly.

MOD440: DAQ job verification before job start

The DAQ job verification before job start is now always suppressed if catman is in unattended test mode (program start with specific DAQ project and automatic start of DAQ job) to prevent a potential and unwanted interruption of the test.

MOD441: Channel data export for online class counting computations

The manual export of channel data into an ASCII file now supports also online class counting computations.

MOD442: Communication log menu visible as standard

The communication log menu is now shown as a standard and does not need to be made visible in the program options.

MOD443: Microsoft OneDrive folders excluded as working directory

Microsoft OneDrive folders have been excluded as program working directory or location of the temporary data storage.

MOD444: EasyScript function EA.MessageBox

Displaying a modal message box with return values from the user selection via EasyScript function EA.MessageBox is now also possible during a running DAQ job. Previously only non-modal message boxes were allowed in this stage.

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MOD445: Limit value monitoring default colors

Default colors of limit values for alarm and warning are changed to red and orange.

FIX1155: Wrong values delivered for Vaisala Weather Station

In some cases incorrect values were delivered for the relative humidity and air temperature channels of Vaisala Weather Stations.

FIX1156: Changing of excitation voltage of MGCplus multi-channel board

Changing the excitation voltage of a single channel of a MGCplus multi-channel board (e.g. ML801) via direct hardware edit was not changing the voltage on the other subchannels of this amplifier. It was only changed if the channel had a sensor assigned.

FIX1157: Assigning CAN signal to entire connector

If a CAN signal was assigned to all channels of a CAN connector (assignment to first channel of a collapsed connector node in channel list) multiple warnings about duplicate channel names were produced. In addition the the resulting default names were impractical.

FIX1158: Creating annotations in standard graph

New annotations were sometimes not visible if created in a zoomed graph.

FIX1159: Recorders window could become invisible

In some cases the window of the parallel recorders was moved behind the main window of catman after the first recorder was finished.

FIX1160: Pre-trigger in recorders too long

The pre-trigger time in recorders could be too long if the project contained hardware time channels and not all sample rate groups were utilized.

FIX1161: Online class counting computations: wrong residuum count with multiple exports

Exporting DAQ job data with online class counting computations and option "Close residuum" several times (e.g. export after DAQ stop + EasyScript) was changing the residuum count in the result file with every export.

FIX1162: Wrong display of online time at level compound counting computations

The display of online time at level compound counting computation data in 3D charts and diagrams in both DAQ and analysis project was incorrect. The y-axis had a wrong scale. In addition the display in analysis project data tables did not work. This was only a display problem. The actual data was correct.

FIX1163: Saving/loading linearization table and polynomial coefficients in computation channels

RELEASEnotes

Saving and loading a linearization table or polynomial coefficients to and from a separate file into fixed formulas of computation channels in DAQ project did not work.

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FIX1164: Adding QX module to DAQ project

OnBoard math channels could not any longer created together with added modules supporting this functionality (e.g. MX410 or MX460).

FIX1165: Traceability data loss in analysis project export

Some traceability data like QuantumX module type got lost if the channel data was further exported in analysis project.

FIX1166: Object size handles becoming visible

In rare cases the size handles of a table object could become visible while the visualization is in execution mode.

FIX1167: Unneeded checkbox control in time synchronization dialog

The NTP configuration tab of the time synchronization services dialog displayed a "Use NTP config file" checkbox. This applies only to optical interrogators but was also sometimes visible even if no interrogator is part of the DAQ project.

FIX1168: EasyScript functions EA_IO.QuantumX.ReconnectAllModules and EA_IO.SetFormula

Reconnection of modules or changing of algebraic expression were not always working because sometimes a necessary channel init was missing.

PRB1: CAN raw receivers with very low sample rates below 10 Hz

In case of very low sample rates below 10 Hz and a high output rate of CAN raw messages it is possible that not all messages could be read because data transfer operations are not performed often enough. It is strongly recommended to use a sample rate of at least 10 Hz with active CAN raw receivers or if not possible to increase the maximum number of samples per data transfer (DAQ job settings-> Advanced -> Data transfer and error handling).

PRB2: Zooming in real-time chart while a triggered DAQ job is running

Zooming into a real-time chart of a triggered DAQ job might not show the correct part of the graph. Use a post-process graph for zoom operations and triggered jobs.

PRB3: Pre-trigger time in recorders too short

Pre-trigger times in recorders are often a bit shorter than the time specified in the settings. This effect is more pronounced with lower recording rates <= 10 Hz. It is advisable to specify a pre-trigger interval that is up to 1/3rd longer than the necessary time to be on the safe side.

PRB4: MXFS gateway functionality not supported

The function of the MXFS to serve as a gateway for other QuantumX/SomatXR modules is not supported in the current version.

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RELEASEnotes

V5.4.1

Summary

New general functions

- Supporting new optical module MXFS
- Enhanced channel search and preview in analysis mode
- Extended script functionality
- Sensor data base update with MCS10

New function for vehicle testing

- Add GNSS/GPS to an existing project
- New autonomous/unattended test mode settings

Supported Windows versions

- Windows 10
- Windows 8.1
- Windows 7

For more functions, details, modifications and fixes please read below.

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FUN 475: Ready to use with new optical module MXFS

With the upcoming introduction of the new MXFS module of the HBM QuantumX series HBM offers a new and powerful method to measure mechanical quantities like strain based upon optical wavelength changes of light in a glass fiber. This opens fields of applications where the classical electrical strain gage is not applicable like for instance high voltage environments.

See topic "Data acquisition with the QuantumX optical module MXFS" in catman help for a detailed description of this function.

FUN476: Enhanced channel search function in analysis mode

The channel search function in *TestExplorer* is now listing all channels from all loaded tests meeting the search criteria as opposed to just mark the first channel and then allowing to step through the channel list. Regular expressions are now supported and the search can be applied to a much broader range of channel properties e.g. searching for channel comment, sensor name, excitation voltage etc..

The *TestExplorer* file search has been extended to allow for regular expressions.

FUN477: Channel preview in Test Explorer

A graphical display of a single channel together with some traceability data can be shown in Test Explorer without the need to load that channel into the analysis project.

FUN478: Add GPS device to project

NMEA compatible GPS devices can now be added to existing DAQ projects.

FUN479: Functions to ease handling of autonomous recordings

- DAQ job settings can be adapted with one click to be most suitable to autonomous recordings.
- Waiting period before first hardware access on automatic project loading at program startup can be aborted by user.

FUN480: EasyScript: New functions

- Function to retrieve last error message from QuantumX module (EA_IO.QuantumX.GetLastErrMsg).
- Function to reconnect a QuantumX module (EA_IO.QuantumX.ReconnectModule).
- Several new functions in EA_IO.Optics related to the new QuantumX optical module MXFS (see FUN475).

FUN481: New sensors added to sensor database

Several new MCS10 force transducers have been added to the HBM sensors in the sensor database.

MOD426: PMX synchronization

The quality of the synchronization in projects with multiple PMX devices (synchronized via sync cable) has been improved to be near 1/fs.

RELEASEnotes

MOD427: NTP status info of MOOG device

Time synchronisation services dialog is giving better status info for NTP status of MOOG devices.

MOD428: Receive buffer size of RS232 interface increased

For additional devices connected via RS232 interface the receive buffer size has been increased.

MOD429: Easier handling of QuantumX firmware update

Firmware update will automatically detect if the firmware update file for B- or C-hardware platform has to be used.

MOD430: Sensor comment as channel comment

Sensor comment is used as channel comment on sensor assignment.

MOD431: Maximum number of coefficients for polynomial scaling increased

Maximum number of coefficients for polynomial scaling has been increased from 4 to 5.

MOD432: Placeholders in file name

Placeholder %TestFileName% added for file name without path. Also test file placeholders now available in analysis project if only one test is loaded. They were previously not working at all in analysis project.

MOD433: FTP upload: trace data logging extended

To enable better troubleshooting in case of connection problems, communication data sent to a FTP server is logged in addition to the answers from the server.

FIX1136: GPS Sat Time

The GPS channel "SAT_TIME" delivered incorrect time (not UTC) in case time zone was other than EST.

FIX1137: MOOG RTFE

- A crash occured on DAQ start in case of a synchronized measurement.
- The device could not be included in a project via "Add manual device" in HBM Device Manager.

FIX1138: DAQ project class counting

- RangeMean matrix contained values of FromTo computation in addition to RangeMean values.
- Residuum was not closed.

FIX1139: Class counting data in EasyScript function EA_DAQ.SaveData

Class counting data was missing if the measurement was exported by script function EA_DAQ.SaveData.

FIX1140: Temperature sensors in sensor database

RELEASEnotes

Unit in the linearization table was incorrect if the user switched the unit of the sensor (e.g. °C to K). This was only a display problem and had no impact on the measurement.

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FIX1141: Error message on start of triggered measurement

In case of DAQ projects with multiple devices and all hardware channels of one device being deactivated an invalid error message could be shown on starting a job with a start trigger if previously a high precision zero balancing operation was performed.

FIX1142: Cyclic data saving

In rare cyclic data saving configurations the sequence plan was not correctly handled (e.g. sequences without any saving, block size larger than interval).

FIX1143: DAQ job stop by trigger

If a job was stopped by a trigger but not started by a trigger video camera recording could be stopped prematurely and event "On stop trigger" thrown too early.

FIX1144: Warning messages on termination of DAQ job

These warning messages could unintentionally block an unattended operation

FIX1145: DAQ job verification

If the DAQ job verification was called from within the DAQ job settings dialog as opposed to calling before DAQ start the latest changes to the job were not covered by the validation.

FIX1146: Fast-Stream conversion

Fast-stream conversion could crash in case of measurements with very large readblock sizes (greater than 20000 values).

FIX1147: Cursor data display for maps

Latitude data was not updated for maps when using floating cursor.

FIX1148: Matlab export in recovery mode

Matlab export in recovery mode on program start did not create a test file and global test counter was not increased.

FIX1149: Loading all tests in a folder

Tests were loaded twice if the option to load all tests was used and if the Test Explorer was displaying files of all types.

FIX1150: Editing analysis project computation of type "Data series"

A crash could occur on attempt to edit the values in the data table if the "Max rows" textbox was empty.

FIX1151: Creating sensors in EasyScript

It was not possible to create sensors with excitation voltage = 0V. This was automatically changed to 2.5V.

RELEASEnotes

FIX1152: Scaling info in analysis project script tables

Polynom and strain gage scaling was not properly displayed.

FIX1153: EasyScript function EA_Test.ChannelAttribute

Channel type for hardware channels was not correct.

FIX1154: EasyScript function EA_Panel.SetRTDisplayChannel

This function did not work if a channel was assigned to a table of a row which was not visible.

PRB 1: Low samples rates in combination with many CAN raw signals

CAN raw signals should be acquisitioned with at least 10Hz sample rate to avoid information loss since CAN raw data are not buffered. Low sample rates could influence the Unattended Test Mode behavior (Warning popup window). It is recommended to use higher sample rates. Update is planned for next version.

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Supported Windows versions

- Windows 10
- Windows 8.1
- Windows 7

MOD419: Importing of ASCII files + header up to 2 GB

ASCII files + header up to a size of 2 GB can now be imported. This was only possible for ASCII files without header.

MOD420: EasyScript function EA_Test.Remove

Removing tests from the analysis project via EasyScript got an optional parameter to prevent the removal of display sources and computations pointing to the removed test.

MOD421: Stacking of graph axes made possible via EasyScript

Stacking and unstacking of y axes of standard graphs are now possible in Easy Script function EA_Graph.SetProperty (reading out of stacking via GetProperty).

MOD422: EasyScript function EA_DAQ.AddComment in automatic execution stages

Creation of DAQ comments via EasyScript now also possible in automatic execution stages "After DAQ stop" and "Before data saving". The DAQ job is already stopped at these points but the test file is not yet written.

MOD423: Pt500 supported by QuantumX/SomatXR 840B

Pt500 thermocouples are now supported by QuantumX/SomatXR 840B.

MOD424: List of supported filters by MGCplus

The list of filters supported by MGCplus is extended with "Bessel 25 Hz" filter for use by CANHEAD modules.

MOD425: DAQ job verification extended

DAQ job verification has been extended to check if catman is running in logger mode (e.g. on a CX22) and the job is configured to stop with error message in case of an error. In this case a warning is shown at first start.

FIX1121: Crash of hybrid system on DAQ job start

A hybrid system with FS22DI optical interrogator and QuantumX modules with hardware channels being activated could crash on DAQ job start.

FIX1122: FS22: catman not working if too many peaks are detected

catman did not work if more than 256 peaks were detected on a FS22 optical interrogator. The maximum number of channels on an optical interrogator is 256. Any more peaks detected are now ignored.

FIX1123: Activation/deactivation of shunt sometimes not working

Activation or deactivation of shunt sometimes did not work on channels of MGCplus devices if a sensor is assigned.

RELEASEnotes

FIX1124: Sensor adaptation: incorrect type displayed in dialog for MGCplus

In case of adapting a sensor assigned to a MGCplus channel some types of frequency sensor were identified as counter sensors.

FIX1125: MGCplus ML60: some frequency sensors rejected

Frequency sensors with a maximum electrical value above 200 kHz were rejected by MGCplus ML60 amplifiers on assignment.

FIX1126: MX410: incorrect analog output

The analog output of a QuantumX MX410 module could be incorrect if a sensor with table scaling was assigned.

FIX1127: Incorrect live readings after Excel parametrization

Live reading display of MX471 CAN channels could be incorrect after Excel parametrization if the CAN parameter setup was also done via Excel and no CAN bus was connected.

FIX1128: Repeated DAQ jobs not starting under certain conditions

The first repetition of a repeated DAQ job failed to start if QuantumX modules are using the decimal sample rate group and the modules are automatically reconnected on each job start.

FIX1129: Limit value monitoring with waiting time not working under certain conditions

Monitoring of a limit value was not working if a waiting time higher than 0 seconds was specified (default is 0 seconds) and the limit value was assigned to more than one channel.

FIX1130: Wrong DAQ start time in test file

Under certain circumstances the DAQ job start time in the test file could be wrong (incorrect hour). Time in the data file was correct.

FIX1131: Matlab 5 export not working with CAN raw channels

Data export in Matlab 5 format was not working and could lead to a crash if CAN raw channels were present. CAN raw channels are now ignored in the export.

FIX1132: Inconsistencies in modifying computations of type "Dataset"

There were some inconsistencies in modifying a manually created dataset based on formulas (e.g. "Sin(x)") in analysis project computations.

FIX1133: Disappearing visualization panel scrollbars during main window resizing

Visualization panel scrollbars were disappearing if the main window was not maximized, vertical and horizontal scrollbars scrolled to the end position and then the main window maximized.

FIX1134: EasyScript function EA_IO.CPDControl for setting digital output not working

RELEASEnotes

EasyScript function EA_IO.CPDControl was not working for setting the digital output of MGCplus CP42/52. Reading digital input was working correctly.

FIX1135: EasyScript: plots assigned to wrong graph layer

In case of standard graphs with multiple stacked layers plots assigned via EasyScript functions EA_Panel.SetRTDisplayChannel, EA_Test.PlotYT and PlotYX were always assigned to the last layer.

RELEASEnotes

V5.3.2

Overview about the most important new functions and modifications

New functions

- CAN raw data recording for CAN FD
- Support a new QuantumX gateway functionality
  - MX471C acts as a Firewire to Ethernet gateway
- Recording of uncompressed video stream
  - Performance optimized because no decompression is needed
  - Tested with Axis cameras
- Discontinuation of products: SI410 and DI410 optical interrogator, MGCplus CP32 and QuantumX CX22

Supported Windows versions

- Windows 10
- Windows 8.1
- Windows 7

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FUN470: MX471C CAN raw FD

With version 5.3.2 catman supports the CAN raw FD functionality of the MX471C module. The user can select in the scan options if raw messages should be read in classic format (up to 8 byte payload) or FD format (up to 64 byte payload).

FUN471: MX471C gateway function

With version 5.3.2 the MX471C can serve as a communication gateway for other QuantumX modules similar to the CX27. Modules behind the MX471C are automatically included into your project. The gateway functionality can be activated or deactivated in the device manager.

FUN472: Support of AXIS RTP video camera

catman V5.3.2 supports AXIS RTP video cameras as a new camera type.

FUN473: New script methods

- EA_Panel.SetObjectFocus allows to set the focus to an user input object (e.g. textbox).
- EA_Graph.CursorActivation allows to activate/deactivate cursor mode for all graphs in the project.
- EA_Graph.MapSetPosition allows to center a map on a specific coordinate and set a zoom level (replacement for MapQuery function).

FUN474: New sensors added to sensor database

The new T21WN torque sensors and the C6B and C15 force transducer groups have been added to the HBM sensors in the sensor database.

MOD392: MGCplus CP32 discontinued

The CP32 communication processor of the MGCplus is discontinued for new projects in catman 5.3.2.

MOD393: Scan for QuantumX modules with firmware <4.0 removed

HBM device manager is not any longer supporting scan for QuantumX modules with firmware version <4.0.

MOD394: SI410 and DI410 optical interrogator no more supported

SI410 and DI410 optical interrogator are not any longer supported by catman.

MOD395: No support on old CX22 Data Recorder

Beginning with version V5.3.2 catman cannot be installed on old CX22 Data Recorder. All CX22B versions are supported.

MOD396: Restrictions in channel naming removed

The channel name restrictions introduced in V5.2.2 (e.g. no brackets or blanks in name) have been removed as being too strict. The error message in case of invalid algebraic formulas has been extended instead to cover the case of invalid characters in channel names since this was the main reason to introduce these restrictions.

MOD397: CAL info column in channel configuration table

This column is now displaying the expiration date of the assigned sensor. It can be made visible in the channel list options.

RELEASEnotes

MOD398: Channel display filter "Hide time channels" changed to "Hide hardware time channels"

The channel display filter option only effects on the hardware time channels. The catman software time channels can be made visible/invisible in the general options.

MOD399: Zero balance locking also set in QuantumX module

Zero balance locking/unlocking was only stored in software. This is now kept in sync with the zero balance locking in the hardware itself otherwise it was not possible to perform a zero balance operation if it was locked from the outside (e.g. MX Assistant).

MOD400: Added 30 kHz Bessel and Butterworth filters

The list of manual filters is extended with 30 kHz Bessel and Butterworth filters.

MOD401: Prompt for activation of statistics journal

The user is asked if statistics journal should be activated if a channel is set active for the journal but the journal itself is not yet activated.

MOD402: Check for correct key format in SFTP upload

catman supports only DSA and RSA encryption for SSH authentication. Correct key format is now checked on server login and the user is getting feedback about wrong key format.

MOD403: Min/max column of simple DAQ table in analysis project

Min and max columns are now also available for simple DAQ tables in analysis project.

MOD404: Changing cell type in flex table

Cell type in DAQ project flex tables can now be changed if a datasource is assigned to the particular cell. This allows greater flexibility to use built-in formulas in the table because these require numerical cell types.

MOD405: Dynamic compression of real-time graphs used in fewer circumstances.

catman V5.2.1 introduced dynamic compression of real-time graphs. If the time window of the graph was larger than 5 minutes the compression factor was initially smaller to overcome the problem of the long waiting time until the graph was updated for the first time because of long update intervals. However this causes the graph to not adhere to the configured time window until the expected compression factor is reached. For this reason catman 5.3.2 uses dynamic compression only if the time window is longer than 10 minutes and if the update interval derived from configured time window and number of points to be displayed uncompressed is greater than 20 seconds.

MOD406: No setting of x-axis caption by assigning frequency computation to graph

If a frequency computation is assigned to a graph via EasyScript function EA_Graph.PlotYX the x-axis caption is not automatically changed to "Frequency [Hz]".

MOD407: Option to update a text object periodically during a DAQ job

RELEASEnotes

Text objects got an individual parameter to continuously update the object during a DAQ job. This is primarily intended for text objects displaying the system text "Time" so they can act as a clock.

MOD408: DAQ job terminated if maximum channel length is reached

catman is not able to record more than 2 billion values in a single channel. This was only checked before DAQ job start if the number of values per channel could be determined from job settings (i.e. job termination by number of samples or time). With catman 5.3.2 the recording is now terminated if the limit is reached.

MOD409: Saving default selection for switching to analysis mode in DAQ project

If the user is switching directly from the DAQ project into analysis mode, the selection (e.g. analyze data with existing analysis project) can be remembered as default so the user is not prompted at every switching operation. However this default is only remembered in the current session. It is now possible to save the default into the current DAQ project.

MOD410: Auxiliary channels in recorders

Auxiliary channels with manual timebase excluded from downsampling.

MOD411: Program startup command parameter "/data" made independent from Test Explorer file extension filter

The "/data" startup command parameter to start catman in analysis mode with a specified test is now ignoring the file extension filter specified in the options allowing to load the test or data file independent of this option.

MOD412: MGCplus CP52: Min and Max poll interval for NTP sync

NTP synchronization with MGCplus CP52 communication processor got additional parameters to control the minimum and maximum poll interval for NTP messages.

MOD413: Single strain gage computation in EasyScript

The EasyScript functions for creating strain gage computation channels (EA_IO.CreateRosetteChannel) and strain analysis in offline mode (EA_Test.StrainAnalysis) are now supporting also single strain gage computations. These computations deliver only principal nominal stress 1 as result.

MOD414: More information in EasyScript function EA_IO.ChannelAttributes

EA_IO.ChannelAttributes extended to provide the firmware version of a channel from a QuantumX module and if a channel is an auxiliary channel.

MOD415: catman version info added to system log

The system log entry about catman being started is now also logging the version number of the program.

MOD416: Online computation channel formula in Excel and ASCII export

The online computation channel formula is now also part of the header info in Excel and ASCII files if the export is done in analysis mode.

MOD417: SIE file conversion

RELEASEnotes

Data format "rainflow/range_only" is now also supported in conversion of SIE files.

MOD418: FTP upload sped up

Upload of files to FTP servers has been sped up.

FIX1076: Fast-Stream files could be corrupt

Fast-Stream data files could be corrupt if the project contained CX27 digital IO channels.

FIX1077: FastStream conversion not working on network drive

FastStream conversion did not work on a network drive. Attempting to do so could lead to a crash.

FIX1078: DAQ project with QuantumX and KiRoad sometimes unsynchronous

In a new DAQ project with QuantumX modules and a KiRoad device the signals in the DAQ job were sometimes unsynchronous. Reloading the project solved the problem.

FIX1079: Too many GPS samples generated

A GPS device could generate too much samples in a DAQ job if active MX471 CAN raw channels were part of the project.

FIX1080: Wrong number of samples in catman time channel generated

The catman time channel of the default sample rate group of a MX471 module could have the wrong number of samples if a CAN raw channel was activated on the module.

FIX1081: High precision zero balancing failing

In some circumstances the high precision zero balancing could fail if the channel to be measured was in the fast sample rate group.

FIX1082: Wrong limit value assigned to channel

A wrong limit value/event could be assigned to a channel if events which are not assigned to a channel (e.g. time interval) are intermixed with limit values and the assignment to the channel was done via channel list context menu and not the ribbon bar. Could also happen if an event not intended for a channel was created via channel list context menu and not the ribbon bar.

FIX1083: Repeated warning actions in limit value monitoring

Warning actions of limit value monitoring were continuously executed as long as the warning condition was fulfilled even if repeated actions in case of the condition pending was not set.

FIX1084: Sensordatabase: switching scaling type between zero span and two point scaling

Switching the scaling type between zero span and two point was not formatting the current content of the GUI. Switching to two-point-scaling was reading the data of the current sensor from the sensor database overwriting the current content and switching to zero span was doing nothing at all to the content.

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FIX1085: Channel detail info and trace data table not displaying all points of linearization table

If the linearization table of a sensor with table scaling had close to the maximum 64 scaling points the detail info and the trace data table were not displaying all points because of insufficient number of table rows.

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FIX1086: CANHead Direct: wrong unit and traceability data

The unit of CANHead Direct channels after assignment of strain gage sensors was "mV/V" instead of "µm/m". In addition some tracebility data was incorrect.

FIX1087: CANBus commands could be lost after removing a device from a project

The CANBus commands sent to a CAN module could be lost if the last module in a DAQ project was removed either in the hardware mapping dialog or in the DAQ project itself.

FIX1088: Component window layout could become corrupt

In rare circumstances the component window layout became corrupt after editing sensors which were assigned to channels.

FIX1089: Bottom help text of computation channel dialog initially wrong

The bottom help text of the computation channel dialog was initially wrong.

FIX1090: Formula collection for optical functions overwritten

The formula collection for optical functions provided in the DAQ computation algebra was overwritten on each catman start. Additions or modifications done by the user got lost.

FIX1091: DataView search function: small issues with searching for consecutive values

In some cases the function was searching for one consecutive value more than specified in the dialog (e.g. searching for 2 consecutive values specified in dialog, the function was searching for 3 consecutive values). Also DataView was jumping to the last value of the detected block of values. Jumping to the first value is better for investigation purposes.

FIX1092: Unnecessary prompt for project saving

The user was sometimes prompted to save the project despite having made no changes to the project.

FIX1093: Project hardware mapper not called

The project hardware mapper was not called if a module behind a CX27 was replaced by a module of the same type. The project was functioning but the trace data was incorrect displaying data like firmware version of the original module.

FIX1094: Wrong module type in project hardware mapper

MX840B modules were labelled as "MX840A" in the hardware mapper project view.

FIX1095: Visibility of design/run mode switching control in system controls

The control was not made visible if slider and knob objects were in the projects. These objects can control analog out channels without a script.

FIX1096: Overflow in adapting sensor with table scaling

RELEASEnotes

Sometimes sensor adaptation of a channel with table scaling delivered overflow on the first try if not momentary value was used as measuring method. It was okay on the second attempt.

FIX1097: Sensor adaptation by measuring mean or RMS value

Measuring mean or RMS value to adapt a sensor was delivering a result in physical values if the channel had no sensor assigned. This has been fixed for mean value. RMS value not selectable in that case.

FIX1098: Adapting sensor parameters not working

Changing sensor parameters in sensor adaptation did not work for frequency and counter sensors on MX440.

FIX1099: Running average

The running average computation in analysis project was adapted for an odd number of window points.

FIX1100: Statistics values in algebra not working for computations

The statistics values min/max/mean in algebraic computations might not be delivered if the argument channel is an analysis project computation.

FIX1101: Inconsistencies in creating/modifying computations of type "Dataset"

There were some inconsistencies in manually creating or modifying datasets in analysis project computations if both datasets based on formulas (e.g. "Sin(x)") and values from the input table were used.

FIX1102: Cursor sync in analysis project not working for computations

Synchronizing visualization objects with the cursor display in analysis project was only working for channels from a data file but not for analysis project computations.

FIX1103: Auxiliary channels: wrong dt in real-time graphs

Auxiliary channels got the dt of the slow sample rate group if the channels were filled by EasyScript project and the time base was provided by sample rate group specification or manual dt. This caused the graphs to scroll far too quickly. The actual data and number of values was correct.

FIX1104: Graph region selector tool: zoom not working in xy graph

Zoom via graph region selector tool did not work in xy graphs with x values not being monotonous.

FIX1105: Graph region selector tool: last value of dataset not included

If the selected region was going beyond the end of the plot the last value of the dataset was not included into the operation (e.g. copying or removing data).

FIX1106: Real-time graph losing data after DAQ job

In rare circumstances real-time graphs could loose all displayed data after a DAQ job if the user was selecting the graph.

FIX1107: Creating/modifying graph annotations

Annotation type "Arrow SE" was missing. Annotations created on current cursor position (via cursor window) could not be modified.

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FIX1108: Graph annotations not visible after redraw

Graph annotations in a project created before version 5.0 were not made visible after graph redrawing. They only became visible if the user was creating or deleting an annotation. Annotations created in newer versions did not have that problem.

FIX1109: Deleting of annotation not possible

An annotation could not be deleted after project loading. The user had to activate the cursor window first.

FIX1110: Wrong scope panel duplicated

The wrong scope panel was duplicated if an empty placeholder object was selected on the panel to be duplicated.

FIX1111: Bar indicator distorted after project loading

The indicator part of a bar indicator was distorted after project loading if the minimum value was larger than 0.

FIX1112: Resize problem of digital indicator on floating panel and scope

Limit value displays in digital indicators on floating and scope panels were wrongly positioned if the panel or the objects inside were resized.

FIX1113: Return values of message boxes in EasyScript and Autosequences could become corrupt

The return value of message boxes in EasyScript and Autosequences could become corrupt if the status update of the visualization panel channel selector was active.

FIX1114: EasyScript function EA_IO.QuantumX.GetXMLView could fail

This EasyScript function failed if a very large XML view (e.g. MX471 CAN connector view) should be retrieved.

FIX1115: EasyScript function EA_Graph.MapQuery not functional

EasyScript function EA_Graph.MapQuery was not functional. It has been removed and replaced by the new function EA_Graph.MapSetPosition.

FIX1116: Icon missing in Test Explorer for strain analysis computation

The main treeview node in Test Explorer for the strain analysis computation was missing if it was created by EasyScript (EA_Test.StrainAnalysis).

FIX1117: Script execution stage "After DAQ error" not working

Script code assigned to the automatic script execution stage "After DAQ error" was not executed.

FIX1118: DAQ status incorrect in virtual DAQ project

In virtual DAQ projects containing only signal generator computations the DAQ status was only correct for the default sample rate group. There was no status for slow and fast sample rate group even if computations were part of these groups. This could cause further problems like FTP upload of MATLAB data files connected to these sample rate groups not being executed.

FIX1119: SIE file conversion: some channels were not converted

RELEASEnotes

Channels of data type "rainflow" were not converted if the computation contained more than 22 classes. Now up to 256 classes are supported for all rainflow types.

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FIX1120: SIE file conversion: conversion not working for very large channel counts

The converted file was corrupt if the SIE file contained a very large number of channels (more than around 4800 channels).

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V5.3.1

Overview about the most important new functions and modifications

New functions for vehicle testing

- CAN FD support (with QuantumX MX471C / SomatXR MX471C-R)
- Enhanced GPS support
  - Support of Ethernet based GPS devices
  - Support of HBM EGPS200plus and Vectornav VN200/300
  - GPS time synchronization via NTP
- Export CAN raw data to Vector CANalyzer Log ASCII format

New functions for lab testing

- NTP support in pure optical systems with FS22

New general functions

- Save and export data in NI TDMS format
- New EasyScript functions

For more functions, details, modifications and fixes please read below.

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FUN452: Support for QuantumX MX471C CAN FD module

With version 5.3 catman supports the CAN FD functionality of the QuantumX MX471C module. catman allows sensors with start bit up to 511 and is capable to configure all parameters relevant for CAN FD (Data phase bit rate, sample point ratio and synchronization jump width). Observe that the CAN FD data bit rate is always a multiple of the CAN classic bit rate (i.e. the bit rate used during the arbitration phase of the bus). Configuration of the CAN FD occurs via "Configure CAN bus" context menu of the channel list or ribbon bar "Special functions/CAN Bus". The sensor database has been adapted to the larger StartBit positions provided by CAN FD.
Important notes:

- Data types > 8 byte currently not supported by this module
- CAN Raw currently not supported by this module
- Sending CAN out message currently not supported by this module

FUN 453: Support of Ethernet based GPS *peplink* MAX series/Surf SOHO

catman V 5.3 supports the GPS forwarding of the peplink MAX router. To make use of this functionality the "Allow Ethernet based GPS" option must be selected (s. "Options/Functions"). If this option is active the "Add manual device" dialog of catman will allow you to select "TCP/IP" as communication protocol. The IP address must refer to the local computer (i.e. 127.0.0.1) and port number is 6700.

To make the GPS data available the peplink router must be configured (via Web interface) as follows:

- In section "Advanced" enable "GPS forwarding"
- In the same dialog specify the IP address and the port to which GPS data should be sent. The IP address must always refer to the PC catman is running on and the port number must be 22.

FUN454: GPS - support of EGPS 200 plus and VECTORNAV

catman V5.3 supports the additional channels of the EGPS 200 plus IMU and RTK units: Accelerations, Gyro (roll, pitch, yaw), RTK (Gyro rates, baseline, accuracy), Heading/Gradient and 2D,3D speeds. It also supports similar channels coming from the VECTORNAV VN 200/300 like Yaw,Pitch,Roll, Gyro rates, accelerations, positions and velocities.

For the VECTORNAV make sure the device is configured (via the VECTORNAV configuration tool) to "Async output" = "INS ECE2".

FUN455: GPS time synchronization via NTP

Former versions of catman did not offer an online time synchronization of the GPS in hybrid systems. Per data transfer block of the master device (i.e. a QuantumX or MGCplus) only one reading from the GPS was considered (and duplicated n times). This caused plateaus of repeated samples in the DPS data. While this was ok for slow GPS sending at 1 or 2 Hz, it completely ignored the much higher resolution delivered with GPS sending at 20, 50 or even 100 Hz.

With version 5.3 a hybrid project can be configured for online NTP synchronization just as any other hybrid project containing e.g. an optical interrogator. With this the full resolution of the GPS is used.

See Using NTP synchronization for hybrid systems including a GPS for more details.
Observe that for GPS NTP synchronization to work, a hybrid system with either QuantumX/SomatXR or MGCplus is necessary. Optical interrogators FS22 can NOT act as NTP synchronization masters.

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RELEASEnotes

FUN 456: New script method to restart catman

The EasyScript method EA.Terminate supports an additional option by which catman can be terminated and immediately restarted afterwards.

FUN 457: Event monitoring

Version 5.3 adds a new event type "After DAQ job start".

FUN 458: Optics - Use NTP synchronization in non-hybrid systems containing FS22 devices only.

Up to catman 5.2 online time synchronization based upon NTP (Network Time Protocol) in projects with optical interrogators FS22 always required additional QuantumX/SomatXR modules or MGCplus devices to be present. Synchronization of a pure FS22 project was not possibly. With catman 5.3 FS22 DI/SI devices will be automatically synchronized based on NTP even if no other device types are present - there is no need for a special configuration.

If for some reason you experience problems with this, the registry key HKEY_CURRENT_USER/SOFTWARE/VB AND VBA PROGRAM SETTINGS/HBM/CATMANEASY/DEFAULTS/FS22_SYNCNONHYBRID allows you to turn off the sync. feature (set to "0").

FUN 459: Optical instruments FS22 SI Smart Peak Detection

Up to version 5.2 the FS BraggMONITOR software tool was required to configure the Smart Peak Detection parameters of the FS22 SI. With 5.3 this is no longer necessary. The builtin catman spectrum display ("Optical functions") will be able to configure the bands of the SPD via the ribbon buttons "SPD ON" and "SPD OFF". In case of "SPD ON" a band for each peak will be defined and transmitted to the FS22 SI.
See also: FS22 SI Smart Peak Detection

FUN460: DataViewer

V 5.3 extends the Data Finder utility by two new search methods:

- Find data point exactly equal to zero
- Find OVFL value

FUN461: Digital I/O triggers - debouncing

V 5.3 provides configurable delay times to prevent unwanted triggers caused by bouncing (e.g. the start/stop switch of a CX22B).

FUN462: Cyclic sending of CAN out messages on MX471

Up to 5.2 catman could send CAN Out messages only once, with every DAQ job start. For several sensors/devices (like ECU, OBD II) it is however necessary that these bus commands are sent cyclically at regular time intervals. catman 5.3 makes use of the MX471 OnBoard Cyclic CAN Out facility which can transmit up to 10 out messages per connector at regular time intervals. See "CANbus configuration/Bus commands").

FUN463: EasyScript - control event monitoring via script

Version 5.3 provides a set of script functions allowing to manage events at runtime It is possible to create new events (EA_DAQ.AddEventDefinition), read the configuration of existing ones, (EA_DAQ.ReadEventDefinition), delete an event (EA_DAQ.DeleteEvent) and assign an event to a channel (EA_DAQ.AssignEvent).

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FUN464: Create an online computation from a sensor scaling

In some cases, it might be desirable to measure the electrical or optical raw value of a channel together with the values scaled to engineering unit (e.g. for traceability purposes). Obviously, this can only be achieved by means of computation channels. While the original hardware channel delivers the electrical raw value (i.e. uses a 1:1 scaling), the computation channel transforms the raw data into engineering units based upon sensor scaling information. Version 5.3 supports this by offering a mechanism to quickly create a computation based upon the scaling parameters of a sensor (see context menu of the SENSOR column). The following steps describe the workflow:

- Assign sensors from the sensor database to hardware channels
- Select the channels for which computations shall be created
- Select "Create computation channel from sensor" in the context menu of the SENSOR column or the ribbon group SENSOR dropdown menu
- The computations will be created while simultanously the original hardware channel ist switched back to electrical raw values (1:1) scaling while retaining all other sensor properties like excitation voltage or measuring range.
- Finally the connection of the hardware channel to the sensor database is disconnected

Observe that several sensor types can not be converted: Thermocouple, Pt100, SSI

FUN465: Curve configuration for standard and cursor graph

Several curve properties (like plot style, symbol type, line type) can be set for all curves in the graph in one go. In the standard graph curve config dialog check the "All" checkbox, in cursor graph use the multiselect feature of the curve list.

FUN466: Analysis mode algebra computations

The functions cmin(ChannelName), cmax(ChannelName), cmean(ChannelName) and cSTD(ChannelName) allow the use of statistical data of a channel in an expression. The following example subtracts the minimum of the channel "Accel_right" from each sample of the channel "Accel_left":
AccelLeft - cmin(AccelRight)

FUN467: Full support of new QuantumX/SomatXR modules MX590B-R and MX1609TB-R

This version fully supports the MX590B-R pressure module and the rugged thermocouple modules supporting thermo type T.

FUN 468: Watchdog program to restart catman in case of crashes or catman no longer responding

See "catman Watchdog" for details.

FUN469: EasyScript time measurement

Added a function EA.HighResTime() to retrieve a high resolution timer (seconds since computer startup) useful for measuring time intervals. Resolution is better than 1 µs.

MOD385: File history

The file history (i.e. files recently used) will now distinguish between DAQ and Analysis mode and only offer the file types appropriate to the corresponding mode.

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MOD386: Prevent changing sample rates with "New DAQ project"

The "Do not touch filters when connecting to device" option (s. catman startup screen "Measaure/Hardware devices and interfaces/More") has been extended to also prevent touching the sample rates currently configured in the hardware. The three sample rate groups in catman will be reconfigured according to the hardware settings. Applicable to QuantumX/SomatXR only!

MOD387: Dropdown and context menus

The height of the menu items has been increased to give a more pleasant look. In addition the descriptive texts which some menu items possessed have been removed. The descriptive text is now shown as a tooltip when hovering the mouse over a menu item.

MOD388: Campus licenses

The initial message box informing the user that a campus license is used has been removed.

MOD389: Date/Time formatting independent from locale setting

Dates and times in test files, DAQ comments,events etc. are now formated independently of any locale settings. The format will always be yyyy/mm/dd hh:mm:ss (e.g. 2018/10/21 09:15:30).
Date time formats with for instance 09:00 PM will no longer occur.

MOD389: Sensor database

The "Export sensor" and "Import sensor" functions can now handle multiple sensors in one go. Export can either export a single sensor or a group of sensors (select the group before export). The import now allows multiple file selection, i.e. import of more than one sensor in one go.

MOD390: Export of CAN raw data (Canalyzer log format, PCAN Trace format)

The ASCII export (either channel context menu "Export data" or EasyScript command EA_Test.ConvertCANRawToASCII) supports export in the standard Vector CANalyzer ASCII log format where each line comprises:
Timestamp Busnumber CanId "Rx|Tx" "d" Number-of-bytes Byte1, Byte2, ..., Byte8
separated by a blank. This file format can be read by many CAN tools and HBM GlyphWorks. Alternatively you can also export in PCAN Trace Log format (.trc) which also can be read my several analysis tools.

Selection of export format is done in the file dialog which shows up after you clicked the "Export data" menu. The script method festures a new ExportFormat parameter: 0=ASCII tab delimited, 1=Vector,2=PCAN.

MOD391: Channel naming

catman 5.3 supports a new registry entry which allows the use of otherwise forbidden characters in channel names if set to 1:
HKEY_CURRENT_USER/SOFTWARE/VB AND VBA PROGRAM SETTINGS/HBM/CatmanEasy/DEFAULTS/ALLOWSPECIALCHANNELNAMES
Allowed are then: spaces, brackets and math. operators like "-"

FIX1054: Recorders using very small pre-trigger times

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Recorders using pre-trigger times < 0.2 s could sporadically crash. It is however still not recommended to use pre-trigger times that small.

FIX1055: Low screen resolution might cause parts of dialogs becoming invisible

Running catman with a screen resolution of 1024x768 might cause the online and post process math dialogs as well as some of the DAQ job configuration to be only partially visible.
Workaround: collapse ribbon bar via the "^" button of the ribbon menu.

FIX1056: QuantumX sensors with incorrect electrical range

In rare cases a sensor configuration could result in either an illegal max. electrical range value (causing "Sensor not supported by hardware" error) or too small a range value, causing a signal overflow. This happened in particular in case of a zero-span characteristics with a very large, negative electrical zero (e.g. displacement transducers where 0 mm could correspond to -253 mV/V).

FIX1057: Sensor database

Displacement transducers of type WI had a wrong input characteristics causing the measurement values to be 50% smaller than expected.

FIX1058: CAN 800 kBit baudrate

If a project contained a CAN configuration with 800 kBit/s this bitrate was not set after project or Excel parametrization file load.

FIX1059: CAN mode dependent (multiplexed) signal

Mode values (multiplexer values) larger than 65535 were not considered properly.

FIX1060: Optical computation channels

A computation of type "wavelength -> temperature" was not displayed correctly when editing immediately after project load.

FIX1061: Assigning a x-channel to a graph via EasyScript (*EA_Panel.SetRTDisplayChannel* and *EA_Panel.SetXAxisChannel*)

- Assigning the channel failed in large graphs (covering most of the panel). The channel was instead assigned as a y curve.
- Unwanted message appeared which must be suppressed if the assignment is done by script
- CANraw and classcounting channels could be used as x dataset - this is however not meaningful.

FIX1062: Visual panel textbox with *MultiLine* property set

The textbox could become visible even if it was not on the current panel (e.g. via EA_Panel.SetValue).

FIX1063: EasyScript function EA_IO.QuantumX.SetArbitrarySignalGenerator

The function did not accept negative voltage values.

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FIX1064: Download files from MGCplus hard disk

Version 5.3 will now also support a download via the USB interface

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FIX1065: MGCplus sensor adaptation

Since version 5.2 measuring an electrical value in the sensor adaptation could result in OVFL even if a sensor was properly connected.

FIX1066: Auxiliary channels

Math channels using auxiliary channels as argument received wrong sample rate. As a result they did not refresh in real-time graphs.

FIX1067: MGCplus ML74 CANHead configuration

In case a project contained more than one MGCplus with ML74 an attempt to configure (i.e. assign the CANHeads, ribbon bar "Special/CANHead") all devices other than the first one, crashed catman.

FIX1069: CAN signals of type INT32 on QuantumX

CAN signals with CAN raw format "Unsigned IN32" or "Signed Int32" with a scale factor of 1 could experience a loss of resolution in case the value gets bigger than 1000000. A typical example for this would be a UTC time (seconds since 1.1.1970) transmitted as unsigned Int32.

FIX01070: Drop channel to graph legend "Replace channel"

This function did not correctly replace the channel if the the curve resided in a layer other than the first one.

FIX1071: MGCplus sample rate and filter setting

On a ML801 multichannel board all subchannels must share the same filter and the same sample rate. When attempting to change rate or filter on a single subchannel, catman prompts the user that all subchannels will be changed accordingly. This verification however failed in case the subchannel belonged to the last board in the device.

FIX1072: MGCplus high definition filters (HD)

catman incorrectly reported a type Bessel (BE) characteristics in the channel list. Filter setup in the device however were set correctly.

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PRB 1: MGCplus CP52 with more than 256 channels (relevant for ML71 CANBus cards only)

catman currently only supports up to 256 channels per device in one sample rate group. The CP52 however supports up to 512 channels per device - in case the channel number exceeds 256 and all are in the same sample rate group a DAQ error BLOCK_TOO_LARGE (-214) occurs. Workaround: put all channels above 256 in another sample rate group.

PRB2: MX471C maximum number of CAN signals per connector

The MX471C potentially supports up to 256 decoded CAN signals per connector. In catman 5.3 however only 128 can be used.
In future versions, however catman will allow recording of all CAN signals on vehicle bus transferred from MX471C as raw data, decoded on PC or recorder and within catman and not on the device.

PRB3: MX471B/C using CAN raw only (i.e. no CAN signal (decoder) channels)

In case the option "Only CAN raw" is set for QuantumX MX471 (Startup screen/MEASURE/Hardware and interface settings/Options/CANBus) other modules in your project will fail to deliver measurement values if they run in the standard sample rate group. Workaround: put these modules either in FAST or SLOW group or do not use the "CAN raw only" mode. In this case you still get CAN raw data but together with a certain number of decoder channels. At least one of these decoder channels must be active!

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FUN444: Support of National Instruments TDMS data format

With version 5.2.2 you may save or export your measurement data into the National Instruments TDMS format (e.g. for further processing in NI Diadem). The files will contain all traceability data. In addition, in catman analysis mode you can directly access TDM/TDMS files without prior conversion to the catman standard format.

If you load TDM/TDMS files in analysis mode which have not been created by catman, it cannot be guaranteed that the content of the file can be interpreted correctly in all cases. For instance catman will not support TDM/TDMS data channels with DataFormat=String. The catman TDM/TDMS reader was however tested with the example files coming with NI Diadem and most of these load correctly.

FUN445: EasyScript support to configure the MX878/879 arbitrary signal generator

A new script method EA_IO.QuantumX.SetArbitrarySignalGenerator allows you to transfer a waveform into the signal generator. The waveform can either be passed as a list of values separated by blanks or read from a text file (one column, each row is one value). The signal generator runs with 96 kHz output rate, use the SampleRepetitions parameter to slow down the output by n-times repetition of an individual sample.
Observe that the signal generator must be configured as "Arbitrary". This cannot be done from within catman - use the MX Assistant tool.

FUN446: Support of new QuantumX gateway module CX27C

catman 5.2.2 supports the new module CX27C as a gateway (i.e. access to QuantumX/SomatXR modules which are connected to the CX27C via FireWire). The throughput of the CX27C is significantly higher than that of the CX27B (up to 2 MS/s).
Observe that in contrast to the CX27B the CX27C does not feature any digital I/O's!

FUN447: New online math filter functions

catman 5.2.2 features three new filter types: Bessel band pass, Butterworth band pass, Butterworth band stop filter. Due to the weaker attenuation of the Bessel characteristic no Bessel band stop filter is provided!

FUN448: Extension of the Excel Parametrization Tool

Configuring a project via an Excel workbook now allows the addition of GPS devices.

FUN449: Password protection

The sensor protection mechanism (OPTIONS/SENSORS) has been extended to protect other actions also:

- Configuration of sample rates and filter
- Configuration of limit values and events
- Editing online math channels
- Deactivation/Activation of channels
- Firmware Update

Access to the password protection setup is additionally provided in OPTIONS/SAFETY.

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FUN450: New online computations for strain gages

- Temperature compensation with up to 5 polynomial coefficients and gage factor temperature dependency
- Change of strain over time (strain rate)

FUN451: DataViewer

The DataViewer module (i.e. quick examination of measurement data) now contains a Data Finder utility, which allows the location of specific conditions in a dataset. Supported methods:

- Go to specific line (data point)
- Find data point > value
- Find data point < value
- Find data point larger than predecessor by value
- Find data point smaller than predecessor by value
- Find data point exactly equal to predecessor

The search will start at the active row in the data table, thus allowing browsing through the whole dataset (i.e. Find Next).

MOD377: DataViewer: Edit data in table

Enable/Disable editing values is no longer possible on a per channel base. Allowing edit mode will allow to edit values for all channels displayed in the DataViewer table.

MOD378: Standard graphs inverted axes

- Axes inversion may now also be applied to the x-axis of a standard graph
- Axes inversion is now also supported by real-time charts

Observe that axes inversion is not supported by cursor graphs.

MOD379: Detection of loss of communication to devices already during configuration phase

This feature can be turned OFF via OPTIONS/SAFETY.

MOD380: Channel and sensor comments

- Assigning a sensor will transfer the sensor comment into the channel comment if the OPTIONS/SENSORS/ "Sensor name as channel name" is active.
- Sensor and channel comments are no longer restricted to 50 characters - sensor comments can have up to 256 characters, channel comments can have an arbitrary size
- Hovering the mouse over the Name column of the channel list will display the channel comment
- Hovering the mouse over a sensor in the sensor list will display the sensor comment

MOD381: Strain gage sensors

With version 5.2.2 the unit label can be chosen different from "µm/m": additional units are "µstrain" and "microstrain".

MOD382: MGCplus and sample rates in synchronized systems

It is no longer allowed that a slave has channels in a sample rate group which is not also used by the master (the first MGCplus in your DAQ project).

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MOD383: Channel names

Blanks in a channel name will automatically be replaced by an underscore (_).

FIX1034: Optical strain sensors with temperature compensation using sensitivity instead of gage factor

If the temperature channel resided AFTER the strain channels to be compensated the strain value was incorrect.

FIX1035: Rescan of project with optical sensors

Only the original sensor properties (from the sensor database) were restored after the scan - not the sensor adaptation.

FIX1036: Online computation of type "Rate of change" (derivation)

The first two samples after DAQ start contained invalid values.

FIX1037: CAN mode dependent signals

Mode values > 32767 were not supported. With 5.2.2 a mode value up to 65535 is allowed.

FIX1038: CAN Raw data table

Filtering the table for ID's with 29 Bit Extended Frame Format did not work correctly.

FIX1040: MGCplus filter settings on inactive channels

Setting filters on a multichannel board (like ML801) which only provides one common filter frequency for all subchannels caused a misleading display in the channel list if channels were deactivated. The list pretended different frequencies while in reality all subchannels shared the same frequency.

FIX1041: Strain sensors wit unit "µm/m" could not be assigned to QuantumX modules on a Japanese Windows OS

Assigning such a sensor resulted in a "Sensor not supported by hardware" error.

FIX1042: Measuring electrical value for 2-point sensor scaling could result in weird value

Measuring the electrical value could unintentionally deliver a physical value in engineering units. This happened under the following circumstances:

- Only on QuantumX/SomatXR modules
- Only if measurement performed from within the Sensor Database Manager
- Only if measurement method was "Average over n seconds"
- Only if channel was zerobalanced (i.e zerobalance <> zero)

FIX1043: Online computation channels

If a computation consisted of a pure constant expression (like "1 + pi/2"), i.e. did not contain an argument channel, catman could crash or deliver an unexpected result.

FIX1044: Edit online computation channels

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Edit multiple channels in one go: only the selected channel was really initialized. That is the changes for the other channels did not become effective if a DAQ starts immediately following the edit operation.

FIX1045: Execute EasyScript after DAQ job termination

Script to be executed after DAQ job termination (the DAQ job configuration dialog "General\Execute automatically on DAQ stop", NOT the auto exec stages!) did not get executed in case of a regular DAQ stop via the ribbon button.

FIX1046: Optical interrogators and band locking

The band lock information got lost after project load.

FIX1047: FastStream converter

Conversion of files with a large number of channels (> 200) and sample rates > 50 KHz could lead to a crash of the converter program.

FIX1048: Statistics journal

Using the statistics journal with wavelength channels from an optical interrogator resulted in insufficient precision of the wavelength data written to the statistics text file (.stat).

FIX1049: Changing sample rates or filters on MGCplus

In rare cases (e.g. with ML77 boards present) this operation crashed catman.

FIX1050: Hybrid systems including more than 16 QuantumX/SomatXR modules

Catman crashed when creating a new DAQ project.

FIX1051: Terminating DAQ job

Terminating DAQ jobs which had repetitions failed to restore the ribbon GUI in the following scenario: "Abort all repetitions" selected in the DAQ stop prompt dialog.

FIX1052: MGCplus and ML74 CANHead

In case sensors with differing excitation voltages were assigned to channels of one and the same CANHead module, the channel list live readings could produce incorrect values. All channels of a module must share the same excitation voltage.

FIX1053: UDP output on CX22B

On a CX22B the UDP output of measurement data during a DAQ job ("DAQ job settings/Advanced") incorrectly used the IPoverFirewire network adapter to stream the data instead of the regular LAN adapter.

PRB 1: MGCplus CP52 with more than 256 channels (relevant for ML71 CAN bus cards only)

catman currently only supports up to 256 channels per device in one sample rate group. The CP52 however supports up to 512 channels per device - in case the channel number exceeds 256 and all are in the same sample rate group a DAQ error BLOCK_TOO_LARGE occurs. Workaround: put all channels above 256 in another sample rate group.

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PRB2: Triggered video recordings

Depending on the camera type it may happen that the video recording starts too early (immediately when the DAQ job starts). This can be prevented by putting a "Live video" display object on the visualization panel and activate its "Preview" mode.

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RELEASEnotes

V5.2.1

Overview about the most important new functions and modifications

New functions for lab testing

- Data acquisition from GOM Aramis 3D Motion and Deformation Sensor
- Enhanced FS22DI device support: Support NTP synchronization and new sample rate 1000S/s

New functions for vehicle testing

- Enhanced device support
  - QuantumX CX22B-W-R: UPS (Uninterruptible Power Supply) feature support
  - Enhance synchronization status display
- Visualization of GPS data in Baidu maps

New general functions

- Personal formula library for algebra calculations
- Enhanced analysis and post process functions
  - New Channel overflow event
  - Add single channels to analysis project
  - Enhanced search in test explorer using meta data parameters
- Enhancements for large channel applications (100-1000 channels)
  - Edit multiple online computations in one step
  - Intelligent renaming of channels
  - Online algebra computations with channels of mixed sample rate
- Many new functions in EasyScript
  - E.g. functions to directly access data in measurement files for analysis

For more functions, details, modifications and fixes please read below.

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FUN431: NTP synchronization with Fiber Sensing optical interrogators

With firmware 2.0 or higher the HBM Fiber Sensing interrogators FS22 SI/DI feature an onboard NTP clock synchronization. catman will make use of this in case of hybrid systems (QuantumX/MGCplus + interrogator) to improve the time synchronization between the systems. Under "Special/Configure external time synchronization" you may monitor the sync quality.
Observe that the interrogators always expect the NTP server to be the PC where catman is running on. It is currently not possible to select a different server. This has several important consequences:

- The local PC must run NTP services. This is always the case if you installed catman with the option "Install NTP time server" (ON by default). You can verify this in the windows start menu, program folder "Meinberg/Network Time Protocol/Quick NTP Status". The folder "Meinberg/Network Time Protocol/Service Control" allows you to restart the NTP service.
  In case the "Meinberg" program folder is not present no NTP services are available. You may either reinstall catman with the above mentioned option set or download the NTP service software from the Meinberg web site (www.meinbergglobal.com/english/sw/ntp.htm).
- The NTP time sources of the QuantumX/MGCplus devices must be configured in a way that they use the local PC as NTP server (see "Special/Configure external time synchronization").

FUN432: Support of CX22B-W-R UPS (Uninterruptible Power Supply)

The CX22B-R comes with an UPS which takes over the power supply in case of a power line failure. The UPS can power the CX22 for several minutes. A new type of event (see also Event Monitoring) in catman "CX22B power supply interrupted - UPS operation active" allows you to take actions (e.g. sending an e-mail). A special type of action "Save data, terminate catman and restart on return of power" will allow you a clean shutdown without the risk of losing data. During the shutdown process catman will launch the Restart Monitor on the CX22. This software will automatically restart catman in case the power line comes back while the CX22 is still in UPS mode.

Observe that the CX22 UPS does NOT power the connected QuantumX/SomatXR modules. If these are connected to the same power line as the CX22, any running DAQ job in catman will immediately abort. Still the event described above will fire before(!) catman terminates the DAQ job.

FUN434: Analysis mode: new search functions in Test Explorer

Formerly the file search mechanism could only search based upon filenames (e.g. "Brake*.TST). With version 5.2 files can be searched for by the content of the TST file. In the search field type Parameter name=Parameter value. The following example shows how to list all files created by all brake test DAQ jobs: Jobname=Braketest* You may use the wildcard character in front or after the parameter value. In most cases you will search for the content of test parameters, e.g. Operator=Smith. Several search expressions may be combined with the AND and OR operators: Operator=Smith AND Jobname=TestDrive*.
The "Search sub folders" option now works independently from any search text. Even without a search criterium, i.e. displaying all test files of a folder, the sub folders may be included.

FUN435: Online computations and analysis mode computations

Computations of type "Algebra" feature so called Formula Collections. A formula collection is a plain text file (.for, by default located in the \Templates folder of the catman working directory) containing formulae, including title and description. From within the "Computation" dialogs you can open a formula collection, add a formula to the collection and copy a formula from the collection to the formula edit window. As an example catman comes with

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a formula collection "OpticalFormulas.for" which contains several useful formulae for the conversion of wavelength changes to strain or temperature.
Hint: Hovering the mouse over the formula collection combo box shows the description for the formula.

FUN436: CX22 digital outputs

A new option (OPTIONS/CX22) allows you to automatically sync the LED state of the "DAQ running" and "Error" LEDs with the digital outputs No. 1 and No.2. That is, the state of these outputs reflects the LED on/off state.

FUN437: Renaming of DAQ channels

Formerly a name was rejected if a channel with that name already existed. Version 5.2 will offer several options how to handle the naming conflict:

- Keep the new name for the channel under edit and set the already existing one to the default channel name
- Keep the new name for the channel under edit and increment the already existing one by an appendix _1, _2 etc.
- Keep the new name for the channel under edit and replace the already existing name by some arbitrary name
- Do not accept the new name and return to the edit dialog

Once an option is selected it may be applied automatically without showing the dialog again (Hint: menu bar window/Show prompt windows will show the dialog again).

FUN438: Online computations and analysis mode computations

A new function "Rate of change (derivative over time)" (residing in the "Predefined formulas" tab of the "Formulas" group) allows a quicker and easier way to use derivation with respect to time. The function calculates the dy/dt of a signal y based upon the sample rate of the signal. In analysis mode the computation additionally provides a smoothing option (based upon Savitzky-Golay filtering) to suppress noise in the derivation amplified from the noise in the input signal. This option is not available for the online computation in DAQ mode.

FUN439: Edit multiple online computations in one go

With version 5.2 it is possible to change a parameter (e.g. the cutoff frequency of a filter) of multiple online computations of the same type for many channels in one go. Simply highlight the desired computation channels and select "Edit computation" from the context menu.
Please observe the following notes:

- Multiple edit does not apply to algebraic formulas
- Changing the formula type (e.g. changing a class count type) is not possible for multiple channels
- Multiple edit is not supported in analysis mode post-process computations

FUN440: EasyScript: Access catman .BIN files

Version 5.2 significantly enhances the EasyScript support for accessing .BIN files (catman standard format). Up to this version, access to measurement data from script required the test to be loaded into the analysis project at first (EA_Test.Load). Sometimes it would however be more flexible to have access to the .BIN file directly. One great benefit: this could be done in DAQ mode. For this reason catman 5.2 adds several new script methods:

- EA_Test.GetDataFileChanCount: retrieves the number of channels in the .BIN file.
- EA_Test.GetDataFileInfo : retrieves header information for all channels in the .BIN file, e.g. number of samples, byte offset of channel data in .BIN file and so on.
- EA_Test.GetDataFileData: retrieves the samples for one channel out of the .BIN file.

RELEASEnotes

- A new set of methods FILE_xxxx in the EA_Comm class allows file access more powerful than the VBA built in functions. The methods simply wrap the Win API file functions (CreateFile, ReadFile, WriteFile, SetFilePointer, CloseHandle). In particulate the EA_Comm.FILE_SetFilePointer method can handle offsets > 2^32 (which is not possible with VBA Seek method).

This set of functions gives the programmer a huge amount of analysis power.

FUN441: EasyScript new helper functions

- The new property EA_IO.DeviceCount (delivers the number of devices in your DAQ project) and the method EA_IO.GetDeviceNameFromPos (returns the name of a device based on position) are useful for functions which expect a device name and you want to iterate over all devices in the project (e.g. EA_IO.QuantumX.ReadXML).
- A new property EA_Test.TestCount allows you to iterate through all loaded tests of your analysis project.
- Two other methods allow the manipulation of online computation channels: EA_IO.GetFormula and EA_IO.SetFormula
  Depending on the type of math channel the formula expression can be a complex string including delimiters like "~". In case of an algebraic formula it is simply the formula (e.g. "PressureLeft + PressureRight/2"), in other cases like for instance a rosette it might look like "ROSETTE~Strain_a~Strain_b~Strain_c~45~235000~0.3~0.14~0.14~0.14~11". If you examine a few formula strings by hovering the mouse over the SENSOR/FUNCTION column you will easily understand the structure of most expressions.
- A new method EA_Job.TriggerPowerBIDataTransfer allows you to force an immediate transfer of channel data to Microsoft Power BI or Influxdb, regardless of the update interval set in the catman Power BI console.

FUN442: Standard and cursor graph axis layers for curves - shortcut to create new layers

The legend context menu (i.e. clicking on legend name) allows the quick creation of a new y-axis layer and automatically moves the curve into this layer.

FUN443 Support for GOM Aramis camera system

catman can acquire position and strain data from the GOM (Gesellschaft für Optische Messtechnik) ARAMIS camera system. Under "Hardware options" select the device type "Optical instruments" and specify the IP address of the computer running the GOM ARAMIS Professional software (alternatively you may also add the camera in the HBM Device Manager in case you want to creade a hybrid system including for instance HBM QuantumX and the GOM camera). catman interacts with this software only - never with the camera controllers. Please observe some important notes when working with the GOM software:

- In the ARAMIS software make sure the "Deformation Tracking" is running and the "SCPI interface" option is enabled -otherwise catman will not be able to connect to the system. Do not stop deformation tracking while catman is running - otherwise you have to restart catman and reload your project. Observe that catman has no means to detect if the ARAMIS configuration (i.e. number of points etc.) does still match your catman project!
- Make sure to terminate catman before you stop the deformation tracking in ARAMIS! If you reconfigure ARAMIS (i.e. add or remove points) you need to create a new DAQ project in catman.
- catman can only acquire data - no configuration of the ARAMIS system can be done from within catman. This applies in particular to the sample rate: the sample rate you select in catman must match the rate configured for the ARAMIS Deformation Tracking!

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- The sample rate you selected in ARAMIS deformation tracking (recommended: 1,2, 5,10, 20, 50) must also be selected in your catman DAQ project. Observe that ARAMIS does not guarantee to provide this rate under all circumstances. Several reasons (high computing load in ARAMIS, disturbed camera image) can slow down this rate. For this reason we recommend to use the REL_TIME catman provides - it contains the actual timestamp of each data packet delivered by the ARAMIS processor. Drag this channel to the x-axis of a graph to obtain a correct y vs. time representation. The channel NTP_TIME contains the absolute timestamps in s since 1.1.970 (UTC).

MOD365: Online computations of type algebra allow mixed sample rates

Up to version 5.1 all argument channels in a formula must belong to the same sample rate group. With version 5.2 this is no longer required - argument channels can belong to different sample rate groups. This is for instance useful in calculations involving a temperature channel, which usually is sampled at a lower rate. The sample rate group of the first argument channel appearing in the formula will determine the number of results generated - usually this channel will belong to the fastest sample rate group used.
Observe that this only applies to online computations in DAQ mode. Algebraic computations in Analysis mode still require the argument channels in a formula to belong to the same sample rate group!

MOD366: Input of numerical values

Input boxes for the entry of numerical values will also accept an algebraic expression, i.e. instead of "1.5" you may also type "3/2" or "sqrt(2)" instead of "1.414". Observe that this is only an input aid - the value shown in the textbox when redisplaying a dialog will always be the result.

MOD367: Display of external time sources and sync topology (s. SPECIAL/CONFIGURE EXTERNAL TIME SYNCHRONIZATION)

This dialog has been reviewed in order to improve the display of sync master/slave relationships and the usage of external time sources like NTP or PTP. The former dialog proved to be confusing in some scenarios.

MOD368: Limit value and OVFL checking

- The event monitoring facility allows the specification of a minimum hold time for the events of type level crossing or sensor range exceedance. The condition must persist for at least this time until the event is triggered. Default is 0, i.e. immediately.
- Added new event type "Channel in overflow". The above mentioned "minimum hold time" also applies to this event type.

MOD369: Recorders

It has been observed that in some cases the launch of the FastStream converter, which occurs immediately after a recording is finished, sometimes takes unusually long (several seconds). In rare cases this could cause a buffer overflow error in the DAQ job process. With version 5.2 the FastStream conversion may be deferred to a later time when it can be done manually (see topic FastStream storage for details how this can be done). Set the registry entry RECORDERNOAUTOFSCONVERT to 1 to switch off automatic FastStream conversion:

HKEY_CURRENT_USER\Software\VB and VBA Program Settings\catmanEasy\DEFAULTS\RECORDERNOAUTOFSCONVERT

MOD370: New DAQ option to ignore Re-sync messages

RELEASEnotes

The DAQ option "Resume measurement also in case of re-sync messages" (in "Synchronization" group of the "DAQ jobs" tab) allows you to continue a DAQ job even in case of a re-sync performed by QuantumX/SomatXR modules. See Ignore Re-sync of QuantumX/SomatXR modules for more details.

MOD371: Long term cyclic storage module snapshot storage

Up to version 5.1 snapshots recorded (i.e. sequence plan contained "Save cycle every....." and only one data point stored for this cycle) and Min/Max values were only written to disk after the DAQ job terminated. With version 5.2 the cyclic storage module offers the option to save the file at selectable intervals.

MOD372: Time information in test file (.TST)

With version 5.2 catman will add the time zone information (the time zone where the test was done) to the .TST file.

MOD373: Data storage in ASCII format

If a precision other than "Auto" was selected, the numbers in the file contained tailing spaces. While this is legal and most programs like MS Excel have no problems with this kind of formatting, it seems that some programs fail to correctly convert the ASCII file back to numbers. For this reason with version 5.2 catman will remove the spaces.

MOD374: Online computations of type Linearization and Polynomial

With version 5.2 you may create multiple computations (assign multiple input channels) for these types in one go.

MOD375: Overview graphs

A new option for the x-axis (see config dialog, register tab "General\X-axis in point index") allows the use of the point index instead of time as x-dataset.

MOD376: Recorders

Added some disk space checks. A recorder is now terminated if disk space capacity falls below 100 MB. In addition, before FastStream conversion is started, a check is done if the total number of bytes recorded plus a safety buffer of 100 MB exceeds the free disk space. If this is the case no conversion will be done. In both cases a message will be written to the log (recorder log and catman event log).

FIX1006: Optical strain sensors with temperature compensation

The measurement value shown in the channel list (live reading) was not correct (measurement data collected by a DAQ job however were ok).

FIX1007: Online computation: Optical strain + temperature compensation

The "Temperature Cross Sensitivity" parameter entered was not displayed correctly when the computation was edited again and computation results were wrong.

FIX1008: Connecting to QuantumX/SomatXR modules not found in scan

If for some reason modules were not contained in the device scan results (e.g. behind a router boundary or scanning ports blocked by Firewall) catman was not able to connect to these modules even if a connection was theoretically possible. With V 5.2 it is possible to build up a DAQ project without the HBM Device Manager (i.e. adding all addresses manually, separated by a ";") even in case the modules are not found by the device scan.

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FIX1009: QuantumX CANBus: Synchronicity between CAN and analog signals on MX840

Depending on the number of analog channels as well as on the sample rates in use it could happen that an analog signal appeared to occur before a CAN signal which gave rise to the change in the analog signal (i.e. response before stimulus).

FIX1010: Online computation channel of type LINEARIZATION

If the input value to be linearized exceeded the last x-point of the linearization table, a wrong result was computed.

FIX1011: Import of visualization from a project

This import failed in case the project has been created with version 5.1. Older versions were not affected.

FIX1012: Cyclic storage module

If the module was configured to use a counter channel in order to count cycles and this counter channel (e.g. MX460) did not start with 0 (because already counting before your DAQ job started) catman created too many snapshots at the begin of the test. This did not occur if the option "Reset counter on start" was set.

FIX1013: EasyPlan

The option "Automatically create default channels for device" was always active and could not be changed (grayed out) in case of MGCplus systems.

FIX1014: MGCplus AP402/S38

Sensor type "Current" (mA) could not be set for this custom version of the AP402 and resulted in a "Sensor not supported by hardware" error.

FIX1015: Project hardware mapper (i.e. device not found after project load) with MGCplus and PMX

With version 5.1 it was no longer possible to manually specify an address range to be used in the scan for available devices.

FIX1016: Sensor database - changing sensor name of existing sensor

Changing the name of a sensor already assigned to a channel did not update the channel list display. The new name was not reflected in the channel list.

FIX1017: Channel health check

Nominal shunt values for MX1615/1616 corrected.

FIX1018: Data file name (see DAQ job configuration/Storage) had .TST extension

This could lead to loss of data - the .TST file did overwrite the binary data file .BIN.The extension .TST will no longer be accepted.

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FIX1019: catman freezes when attempting to create an online computation channel of type algebraic formula

If one of the argument channels was named "c1" catman did freeze after clicking "Create computation".

FIX1020: Vaisala weather station AutoBaud detection not working

The AutoBaudDetect routine only looked for $GP but the Vaisala station sends $WI in NMEA mode.

FIX1021: Analysis mode file converters (SIE)

Adding multiple files to project which needed to be converted could display repeated, unwanted prompt messages.

FIX1022: Kistler KiRoad

Loading a project containing a KiRoad failed to connect to the KiRoad.

FIX1023 Adding all files from folder to the analysis project

In case the "Use channels automatically" option was set the computations and display sources for the last test added were created twice.

FIX1024: Import of CAN dbc file into sensor database

In rare cases a file can contain a leading TAB character at the beginning of a "SG_" line. This caused the import to not read any sensor at all.

FIX1025: Cursor sync with maps

With version 5.1 the cursor sync between graphs/video and maps didn't work correctly. Sync was off by a factor of 2 and zoomed sync (graph was zoomed) didn't work at all.

FIX1026: Error message "Unexpected error loading catman: component File.OCX or one of its dependencies not correctly registered: a file is missing or invalid"

This error could appear if the setup program needed to restart the computer after the installation. Depending on the user account in effect during this restart the registration of OCX components could fail due to missing privileges. With version 5.2 catman ensures the registration after a computer restart regardless of the type of user account.
For this to work the SYSTEM account must be available and the Scheduled Task function of Windows must not be deactivated.

FIX1027: Digital indicators

Digital indicators will no longer show a previous value after loading a project. Instead they will show 0.

FIX1028: Visual panel object "Data table"

Setting font type and size for this object had no effect

FIX1029: MGCplus ML460 invalid frequency range

Depending on the input characteristics (i.e. transforming kHz into engineering units) of a sensor an invalid frequency range (not supported by ML460) could be selected. This resulted in a "Sensor not supported by hardware" error.

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FIX1030: MX840 CANbus - DAQ could not be started (Error: Unknown reason).

CAN decoders were not activated upon catman project start, so it depended on the activation state of the decoders (e.g. set by MX Assistant) if a DAQ job could be started or not. This error applied to version 5.1.3 only.

FIX1031: EasyScript method EA_Test.GetChannelData

An arrray bounds check introduced with 5.1 did no longer allow to dimension the buffer receiving the sample data to exactly SampleCount-1 (i.e. 0 to SampleCount-1 elements). The upper bound of the array needed to be SampleCount at least.

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FIX1032: Incorrect DAQ status displays if MX471 CAN raw channels present

If CANRaw receivers were activated and the MX471 was the last device in the DAQ project, the DAQ status information like remaining disk space and RT lag where incorrect.

FIX1033: MGCplus frequency measurement with ML60 and ML460

The sensor options "5V/100 mV input" (ML60) and "Direct/Integrating" (ML460) where not provided.

PRB 1: MGCplus CP52 with more than 256 channels (relevant for ML71 CAN bus cards only)

catman currently only supports up to 256 channels per device in one sample rate group. The CP52 however supports up to 512 channels per device - in case the channel number exceeds 256 and all are in the same sample rate group a DAQ error BLOCK_TOO_LARGE occurs. Workaround: put all channels above 256 in another sample rate group.

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FUN444: Support of National Instruments TDMS data format

With version 5.2.2 you may save or export your measurement data into the National Instruments TDMS format (e.g. for further processing in NI Diadem). The files will contain all traceability data. In addition, in catman analysis mode you can directly access TDM/TDMS files without prior conversion to the catman standard format.

If you load TDM/TDMS files in analysis mode which have not been created by catman, it cannot be guaranteed that the content of the file can be interpreted correctly in all cases. For instance catman will not support TDM/TDMS data channels with DataFormat=String. The catman TDM/TDMS reader was however tested with the example files coming with NI Diadem and most of these load correctly.

FUN445: EasyScript support to configure the MX878/879 arbitrary signal generator

A new script method EA_IO.QuantumX.SetArbitrarySignalGenerator allows you to transfer a waveform into the signal generator. The waveform can either be passed as a list of values separated by blanks or read from a text file (one column, each row is one value). The signal generator runs with 96 kHz output rate, use the SampleRepetitions parameter to slow down the output by n-times repetition of an individual sample.
Observe that the signal generator must be configured as "Arbitrary". This cannot be done from within catman - use the MX Assistant tool.

FUN446: Support of new QuantumX gateway module CX27C

catman 5.2.2 supports the new module CX27C as a gateway (i.e. access to QuantumX/SomatXR modules which are connected to the CX27C via FireWire). The throughput of the CX27C is significantly higher than that of the CX27B (up to 2 MS/s).
Observe that in contrast to the CX27B the CX27C does not feature any digital I/O's!

FUN447: New online math filter functions

catman 5.2.2 features three new filter types: Bessel band pass, Butterworth band pass, Butterworth band stop filter. Due to the weaker attenuation of the Bessel characteristic no Bessel band stop filter is provided!

FUN448: Extension of the Excel Parametrization Tool

Configuring a project via an Excel workbook now allows the addition of GPS devices.

FUN449: Password protection

The sensor protection mechanism (OPTIONS/SENSORS) has been extended to protect other actions also:

- Configuration of sample rates and filter
- Configuration of limit values and events
- Editing online math channels
- Deactivation/Activation of channels
- Firmware Update

Access to the password protection setup is additionally provided in OPTIONS/SAFETY.

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FUN450: New online computations for strain gages

- Temperature compensation with up to 5 polynomial coefficients and gage factor temperature dependency
- Change of strain over time (strain rate)

FUN451: DataViewer

The DataViewer module (i.e. quick examination of measurement data) now contains a Data Finder utility, which allows the location of specific conditions in a dataset. Supported methods:

- Go to specific line (data point)
- Find data point > value
- Find data point < value
- Find data point larger than predecessor by value
- Find data point smaller than predecessor by value
- Find data point exactly equal to predecessor

The search will start at the active row in the data table, thus allowing browsing through the whole dataset (i.e. Find Next).

Modifications

MOD377: DataViewer: Edit data in table

Enable/Disable editing values is no longer possible on a per channel base. Allowing edit mode will allow to edit values for all channels displayed in the DataViewer table.

MOD378: Standard graphs inverted axes

- Axes inversion may now also be applied to the x-axis of a standard graph
- Axes inversion is now also supported by real-time charts

Observe that axes inversion is not supported by cursor graphs.

MOD379: Detection of loss of communication to devices already during configuration phase

This feature can be turned OFF via OPTIONS/SAFETY.

MOD380: Channel and sensor comments

- Assigning a sensor will transfer the sensor comment into the channel comment if the OPTIONS/SENSORS/ "Sensor name as channel name" is active.
- Sensor and channel comments are no longer restricted to 50 characters - sensor comments can have up to 256 characters, channel comments can have an arbitrary size
- Hovering the mouse over the Name column of the channel list will display the channel comment
- Hovering the mouse over a sensor in the sensor list will display the sensor comment

MOD381: Strain gage sensors

With version 5.2.2 the unit label can be chosen different from "µm/m": additional units are "µstrain" and "microstrain".

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RELEASEnotes

MOD382: MGCplus and sample rates in synchronized systems

It is no longer allowed that a slave has channels in a sample rate group which is not also used by the master (the first MGCplus in your DAQ project).

MOD383: Channel names

Blanks in a channel name will automatically be replaced by an underscore (_).

FIX1034: Optical strain sensors with temperature compensation using sensitivity instead of gage factor

If the temperature channel resided AFTER the strain channels to be compensated the strain value was incorrect.

FIX1035: Rescan of project with optical sensors

Only the original sensor properties (from the sensor database) were restored after the scan - not the sensor adaptation.

FIX1036: Online computation of type "Rate of change" (derivation)

The first two samples after DAQ start contained invalid values.

FIX1037: CAN mode dependent signals

Mode values > 32767 were not supported. With 5.2.2 a mode value up to 65535 is allowed.

FIX1038: CAN Raw data table

Filtering the table for ID's with 29 Bit Extended Frame Format did not work correctly.

FIX1040: MGCplus filter settings on inactive channels

Setting filters on a multichannel board (like ML801) which only provides one common filter frequency for all subchannels caused a misleading display in the channel list if channels were deactivated. The list pretended different frequencies while in reality all subchannels shared the same frequency.

FIX1041: Strain sensors wit unit "µm/m" could not be assigned to QuantumX modules on a Japanese Windows OS

Assigning such a sensor resulted in a "Sensor not supported by hardware" error.

FIX1042: Measuring electrical value for 2-point sensor scaling could result in weird value

Measuring the electrical value could unintentionally deliver a physical value in engineering units. This happened under the following circumstances:

- Only on QuantumX/SomatXR modules
- Only if measurement performed from within the Sensor Database Manager
- Only if measurement method was "Average over n seconds"
- Only if channel was zerobalanced (i.e zerobalance <> zero)

FIX1043: Online computation channels

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If a computation consisted of a pure constant expression (like "1 + pi/2"), i.e. did not contain an argument channel, catman could crash or deliver an unexpected result.

FIX1044: Edit online computation channels

Edit multiple channels in one go: only the selected channel was really initialized. That is the changes for the other channels did not become effective if a DAQ starts immediately following the edit operation.

FIX1045: Execute EasyScript after DAQ job termination

Script to be executed after DAQ job termination (the DAQ job configuration dialog "General\Execute automatically on DAQ stop", NOT the auto exec stages!) did not get executed in case of a regular DAQ stop via the ribbon button.

FIX1046: Optical interrogators and band locking

The band lock information got lost after project load.

FIX1047: FastStream converter

Conversion of files with a large number of channels (> 200) and sample rates > 50 KHz could lead to a crash of the converter program.

FIX1048: Statistics journal

Using the statistics journal with wavelength channels from an optical interrogator resulted in insufficient precision of the wavelength data written to the statistics text file (.stat).

FIX1049: Changing sample rates or filters on MGCplus

In rare cases (e.g. with ML77 boards present) this operation crashed catman.

FIX1050: Hybrid systems including more than 16 QuantumX/SomatXR modules

Catman crashed when creating a new DAQ project.

FIX1051: Terminating DAQ job

Terminating DAQ jobs which had repetitions failed to restore the ribbon GUI in the following scenario: "Abort all repetitions" selected in the DAQ stop prompt dialog.

FIX1052: MGCplus and ML74 CANHead

In case sensors with differing excitation voltages were assigned to channels of one and the same CANHead module, the channel list live readings could produce incorrect values. All channels of a module must share the same excitation voltage.

FIX1053: UDP output on CX22B

On a CX22B the UDP output of measurement data during a DAQ job ("DAQ job settings/Advanced") incorrectly used the IPoverFirewire network adapter to stream the data instead of the regular LAN adapter.

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PRB 1: MGCplus CP52 with more than 256 channels (relevant for ML71 CAN bus cards only)

catman currently only supports up to 256 channels per device in one sample rate group. The CP52 however supports up to 512 channels per device - in case the channel number exceeds 256 and all are in the same sample rate group a DAQ error BLOCK_TOO_LARGE occurs. Workaround: put all channels above 256 in another sample rate group.

PRB2: Triggered video recordings

Depending on the camera type it may happen that the video recording starts too early (immediately when the DAQ job starts). This can be prevented by putting a "Live video" display object on the visualization panel and activate its "Preview" mode.

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Overview about the most important new functions and modifications

New functions for lab testing

- Data acquisition from GOM Aramis 3D Motion and Deformation Sensor
- Enhanced FS22DI device support: Support NTP synchronization and new sample rate 1000S/s

New functions for vehicle testing

- Enhanced device support
  - QuantumX CX22B-W-R: UPS (Uninterruptible Power Supply) feature support
  - Enhance synchronization status display
- Visualization of GPS data in Baidu maps

New general functions

- Personal formula library for algebra calculations
- Enhanced analysis and post process functions
  - New Channel overflow event
  - Add single channels to analysis project
  - Enhanced search in test explorer using meta data parameters
- Enhancements for large channel applications (100-1000 channels)
  - Edit multiple online computations in one step
  - Intelligent renaming of channels
  - Online algebra computations with channels of mixed sample rate
- Many new functions in EasyScript
  - E.g. functions to directly access data in measurement files for analysis

For more functions, details, modifications and fixes please read below.

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FUN431: NTP synchronization with Fiber Sensing optical interrogators

With firmware 2.0 or higher the HBM Fiber Sensing interrogators FS22 SI/DI feature an onboard NTP clock synchronization. catman will make use of this in case of hybrid systems (QuantumX/MGCplus + interrogator) to improve the time synchronization between the systems. Under "Special/Configure external time synchronization" you may monitor the sync quality.

Observe that the interrogators always expect the NTP server to be the PC where catman is running on. It is currently not possible to select a different server. This has several important consequences:

- The local PC must run NTP services. This is always the case if you installed catman with the option "Install NTP time server" (ON by default). You can verify this in the windows start menu, program folder "Meinberg/Network Time Protocol/Quick NTP Status". The folder "Meinberg/Network Time Protocol/Service Control" allows you to restart the NTP service.
  In case the "Meinberg" program folder is not present no NTP services are available. You may either reinstall catman with the above mentioned option set or download the NTP service software from the Meinberg web site (www.meinbergglobal.com/english/sw/ntp.htm).
- The NTP time sources of the QuantumX/MGCplus devices must be configured in a way that they use the local PC as NTP server (see "Special/Configure external time synchronization").

FUN432: Support of CX22B-W-R UPS (Uninterruptible Power Supply)

The CX22B-R comes with an UPS which takes over the power supply in case of a power line failure. The UPS can power the CX22 for several minutes. A new type of event (see also Event Monitoring) in catman "CX22B power supply interrupted - UPS operation active" allows you to take actions (e.g. sending an e-mail). A special type of action "Save data, terminate catman and restart on return of power" will allow you a clean shutdown without the risk of losing data. During the shutdown process catman will launch the Restart Monitor on the CX22. This software will automatically restart catman in case the power line comes back while the CX22 is still in UPS mode.
Observe that the CX22 UPS does NOT power the connected QuantumX/SomatXR modules. If these are connected to the same power line as the CX22, any running DAQ job in catman will immediately abort. Still the event described above will fire before(!) catman terminates the DAQ job.

FUN434: Analysis mode: new search functions in Test Explorer

Formerly the file search mechanism could only search based upon filenames (e.g. "Brake*.TST). With version 5.2 files can be searched for by the content of the TST file. In the search field type Parameter name=Parameter value. The following example shows how to list all files created by all brake test DAQ jobs: Jobname=Braketest* You may use the wildcard character in front or after the parameter value. In most cases you will search for the content of test parameters, e.g. Operator=Smith. Several search expressions may be combined with the AND and OR operators: Operator=Smith AND Jobname=TestDrive*.
The "Search sub folders" option now works independently from any search text. Even without a search criterium, i.e. displaying all test files of a folder, the sub folders may be included.

FUN435: Online computations and analysis mode computations

Computations of type "Algebra" feature so called Formula Collections. A formula collection is a plain text file (.for, by default located in the \Templates folder of the catman working directory) containing formulae, including title and description. From within the "Computation" dialogs you can open a formula collection, add a formula to the collection and copy a formula from the collection to the formula edit window. As an example catman comes with

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a formula collection "OpticalFormulas.for" which contains several useful formulae for the conversion of wavelength changes to strain or temperature.
Hint: Hovering the mouse over the formula collection combo box shows the description for the formula.

FUN436: CX22 digital outputs

A new option (OPTIONS/CX22) allows you to automatically sync the LED state of the "DAQ running" and "Error" LEDs with the digital outputs No. 1 and No.2. That is, the state of these outputs reflects the LED on/off state.

FUN437: Renaming of DAQ channels

Formerly a name was rejected if a channel with that name already existed. Version 5.2 will offer several options how to handle the naming conflict:

- Keep the new name for the channel under edit and set the already existing one to the default channel name
- Keep the new name for the channel under edit and increment the already existing one by an appendix _1, _2 etc.
- Keep the new name for the channel under edit and replace the already existing name by some arbitrary name
- Do not accept the new name and return to the edit dialog

Once an option is selected it may be applied automatically without showing the dialog again (Hint: menu bar window/Show prompt windows will show the dialog again).

FUN438: Online computations and analysis mode computations

A new function "Rate of change (derivative over time)" (residing in the "Predefined formulas" tab of the "Formulas" group) allows a quicker and easier way to use derivation with respect to time. The function calculates the dy/dt of a signal y based upon the sample rate of the signal. In analysis mode the computation additionally provides a smoothing option (based upon Savitzky-Golay filtering) to suppress noise in the derivation amplified from the noise in the input signal. This option is not available for the online computation in DAQ mode.

FUN439: Edit multiple online computations in one go

With version 5.2 it is possible to change a parameter (e.g. the cutoff frequency of a filter) of multiple online computations of the same type for many channels in one go. Simply highlight the desired computation channels and select "Edit computation" from the context menu.
Please observe the following notes:

- Multiple edit does not apply to algebraic formulas
- Changing the formula type (e.g. changing a class count type) is not possible for multiple channels
- Multiple edit is not supported in analysis mode post-process computations

FUN440: EasyScript: Access catman .BIN files

Version 5.2 significantly enhances the EasyScript support for accessing .BIN files (catman standard format). Up to this version, access to measurement data from script required the test to be loaded into the analysis project at first (EA_Test.Load). Sometimes it would however be more flexible to have access to the .BIN file directly. One great benefit: this could be done in DAQ mode. For this reason catman 5.2 adds several new script methods:

- EA_Test.GetDataFileChanCount: retrieves the number of channels in the .BIN file.
- EA_Test.GetDataFileInfo : retrieves header information for all channels in the .BIN file, e.g. number of samples, byte offset of channel data in .BIN file and so on.
- EA_Test.GetDataFileData: retrieves the samples for one channel out of the .BIN file.

- A new set of methods FILE_xxxx in the EA_Comm class allows file access more powerful than the VBA built in functions. The methods simply wrap the Win API file functions (CreateFile, ReadFile, WriteFile, SetFilePointer, CloseHandle). In particulate the EA_Comm.FILE_SetFilePointer method can handle offsets > 2^32 (which is not possible with VBA Seek method).

This set of functions gives the programmer a huge amount of analysis power.

FUN441: EasyScript new helper functions

- The new property EA_IO.DeviceCount (delivers the number of devices in your DAQ project) and the method EA_IO.GetDeviceNameFromPos (returns the name of a device based on position) are useful for functions which expect a device name and you want to iterate over all devices in the project (e.g. EA_IO.QuantumX.ReadXML).
- A new property EA_Test.TestCount allows you to iterate through all loaded tests of your analysis project.
- Two other methods allow the manipulation of online computation channels: EA_IO.GetFormula and EA_IO.SetFormula
  Depending on the type of math channel the formula expression can be a complex string including delimiters like "~". In case of an algebraic formula it is simply the formula (e.g. "PressureLeft + PressureRight/2"), in other cases like for instance a rosette it might look like "ROSETTE~Strain_a~Strain_b~Strain_c~45~235000~0.3~0.14~0.14~0.14~11". If you examine a few formula strings by hovering the mouse over the SENSOR/FUNCTION column you will easily understand the structure of most expressions.
- A new method EA_Job.TriggerPowerBIDataTransfer allows you to force an immediate transfer of channel data to Microsoft Power BI or Influxdb, regardless of the update interval set in the catman Power BI console.

FUN442: Standard and cursor graph axis layers for curves - shortcut to create new layers

The legend context menu (i.e. clicking on legend name) allows the quick creation of a new y-axis layer and automatically moves the curve into this layer.

FUN443 Support for GOM Aramis camera system

catman can acquire position and strain data from the GOM (Gesellschaft für Optische Messtechnik) ARAMIS camera system. Under "Hardware options" select the device type "Optical instruments" and specify the IP address of the computer running the GOM ARAMIS Professional software (alternatively you may also add the camera in the HBM Device Manager in case you want to creade a hybrid system including for instance HBM QuantumX and the GOM camera). catman interacts with this software only - never with the camera controllers. Please observe some important notes when working with the GOM software:

- In the ARAMIS software make sure the "Deformation Tracking" is running and the "SCPI interface" option is enabled -otherwise catman will not be able to connect to the system. Do not stop deformation tracking while catman is running - otherwise you have to restart catman and reload your project. Observe that catman has no means to detect if the ARAMIS configuration (i.e. number of points etc.) does still match your catman project!
- Make sure to terminate catman before you stop the deformation tracking in ARAMIS! If you reconfigure ARAMIS (i.e. add or remove points) you need to create a new DAQ project in catman.

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- catman can only acquire data - no configuration of the ARAMIS system can be done from within catman. This applies in particular to the sample rate: the sample rate you select in catman must match the rate configured for the ARAMIS Deformation Tracking!
- The sample rate you selected in ARAMIS deformation tracking (recommended: 1,2, 5,10, 20, 50) must also be selected in your catman DAQ project. Observe that ARAMIS does not guarantee to provide this rate under all circumstances. Several reasons (high computing load in ARAMIS, disturbed camera image) can slow down this rate. For this reason we recommend to use the REL_TIME catman provides - it contains the actual timestamp of each data packet delivered by the ARAMIS processor. Drag this channel to the x-axis of a graph to obtain a correct y vs. time representation. The channel NTP_TIME contains the absolute timestamps in s since 1.1.970 (UTC).

MOD365: Online computations of type algebra allow mixed sample rates

Up to version 5.1 all argument channels in a formula must belong to the same sample rate group. With version 5.2 this is no longer required - argument channels can belong to different sample rate groups. This is for instance useful in calculations involving a temperature channel, which usually is sampled at a lower rate. The sample rate group of the first argument channel appearing in the formula will determine the number of results generated - usually this channel will belong to the fastest sample rate group used.
Observe that this only applies to online computations in DAQ mode. Algebraic computations in Analysis mode still require the argument channels in a formula to belong to the same sample rate group!

MOD366: Input of numerical values

Input boxes for the entry of numerical values will also accept an algebraic expression, i.e. instead of "1.5" you may also type "3/2" or "sqrt(2)" instead of "1.414". Observe that this is only an input aid - the value shown in the textbox when redisplaying a dialog will always be the result.

MOD367: Display of external time sources and sync topology (s. SPECIAL/CONFIGURE EXTERNAL TIME SYNCHRONIZATION)

This dialog has been reviewed in order to improve the display of sync master/slave relationships and the usage of external time sources like NTP or PTP. The former dialog proved to be confusing in some scenarios.

MOD368: Limit value and OVFL checking

- The event monitoring facility allows the specification of a minimum hold time for the events of type level crossing or sensor range exceedance. The condition must persist for at least this time until the event is triggered. Default is 0, i.e. immediately.
- Added new event type "Channel in overflow". The above mentioned "minimum hold time" also applies to this event type.

MOD369: Recorders

It has been observed that in some cases the launch of the FastStream converter, which occurs immediately after a recording is finished, sometimes takes unusually long (several seconds). In rare cases this could cause a buffer overflow error in the DAQ job process. With version 5.2 the FastStream conversion may be deferred to a later time when it can be done manually (see topic FastStream storage for details how this can be done). Set the registry entry RECORDERNOAUTOFSCONVERT to 1 to switch off automatic FastStream conversion:

RELEASEnotes

HKEY_CURRENT_USER\Software\VB and VBA Program Settings\catmanEasy\DEFAULTS\RECORDERNOAUTOFSCONVERT

MOD370: New DAQ option to ignore Re-sync messages

The DAQ option "Resume measurement also in case of re-sync messages" (in "Synchronization" group of the "DAQ jobs" tab) allows you to continue a DAQ job even in case of a re-sync performed by QuantumX/SomatXR modules. See Ignore Re-sync of QuantumX/SomatXR modules for more details.

MOD371: Long term cyclic storage module snapshot storage

Up to version 5.1 snapshots recorded (i.e. sequence plan contained "Save cycle every....." and only one data point stored for this cycle) and Min/Max values were only written to disk after the DAQ job terminated. With version 5.2 the cyclic storage module offers the option to save the file at selectable intervals.

MOD372: Time information in test file (.TST)

With version 5.2 catman will add the time zone information (the time zone where the test was done) to the .TST file.

MOD373: Data storage in ASCII format

If a precision other than "Auto" was selected, the numbers in the file contained tailing spaces. While this is legal and most programs like MS Excel have no problems with this kind of formatting, it seems that some programs fail to correctly convert the ASCII file back to numbers. For this reason with version 5.2 catman will remove the spaces.

MOD374: Online computations of type Linearization and Polynomial

With version 5.2 you may create multiple computations (assign multiple input channels) for these types in one go.

MOD375: Overview graphs

A new option for the x-axis (see config dialog, register tab "General\X-axis in point index") allows the use of the point index instead of time as x-dataset.

MOD376: Recorders

Added some disk space checks. A recorder is now terminated if disk space capacity falls below 100 MB. In addition, before FastStream conversion is started, a check is done if the total number of bytes recorded plus a safety buffer of 100 MB exceeds the free disk space. If this is the case no conversion will be done. In both cases a message will be written to the log (recorder log and catman event log).

FIX1006: Optical strain sensors with temperature compensation

The measurement value shown in the channel list (live reading) was not correct (measurement data collected by a DAQ job however were ok).

FIX1007: Online computation: Optical strain + temperature compensation

The "Temperature Cross Sensitivity" parameter entered was not displayed correctly when the computation was edited again and computation results were wrong.

FIX1008: Connecting to QuantumX/SomatXR modules not found in scan

RELEASEnotes

If for some reason modules were not contained in the device scan results (e.g. behind a router boundary or scanning ports blocked by Firewall) catman was not able to connect to these modules even if a connection was theoretically possible. With V 5.2 it is possible to build up a DAQ project without the HBM Device Manager (i.e. adding all addresses manually, separated by a ";") even in case the modules are not found by the device scan.

FIX1009: QuantumX CANBus: Synchronicity between CAN and analog signals on MX840

Depending on the number of analog channels as well as on the sample rates in use it could happen that an analog signal appeared to occur before a CAN signal which gave rise to the change in the analog signal (i.e. response before stimulus).

FIX1010: Online computation channel of type LINEARIZATION

If the input value to be linearized exceeded the last x-point of the linearization table, a wrong result was computed.

FIX1011: Import of visualization from a project

This import failed in case the project has been created with version 5.1. Older versions were not affected.

FIX1012: Cyclic storage module

If the module was configured to use a counter channel in order to count cycles and this counter channel (e.g. MX460) did not start with 0 (because already counting before your DAQ job started) catman created too many snapshots at the begin of the test. This did not occur if the option "Reset counter on start" was set.

FIX1013: EasyPlan

The option "Automatically create default channels for device" was always active and could not be changed (grayed out) in case of MGCplus systems.

FIX1014: MGCplus AP402/S38

Sensor type "Current" (mA) could not be set for this custom version of the AP402 and resulted in a "Sensor not supported by hardware" error.

FIX1015: Project hardware mapper (i.e. device not found after project load) with MGCplus and PMX

With version 5.1 it was no longer possible to manually specify an address range to be used in the scan for available devices.

FIX1016: Sensor database - changing sensor name of existing sensor

Changing the name of a sensor already assigned to a channel did not update the channel list display. The new name was not reflected in the channel list.

FIX1017: Channel health check

Nominal shunt values for MX1615/1616 corrected.

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FIX1018: Data file name (see DAQ job configuration/Storage) had .TST extension

This could lead to loss of data - the .TST file did overwrite the binary data file .BIN.The extension .TST will no longer be accepted.

FIX1019: catman freezes when attempting to create an online computation channel of type algebraic formula

If one of the argument channels was named "c1" catman did freeze after clicking "Create computation".

FIX1020: Vaisala weather station AutoBaud detection not working

The AutoBaudDetect routine only looked for $GP but the Vaisala station sends $WI in NMEA mode.

FIX1021: Analysis mode file converters (SIE)

Adding multiple files to project which needed to be converted could display repeated, unwanted prompt messages.

FIX1022: Kistler KiRoad

Loading a project containing a KiRoad failed to connect to the KiRoad.

FIX1023 Adding all files from folder to the analysis project

In case the "Use channels automatically" option was set the computations and display sources for the last test added were created twice.

FIX1024: Import of CAN dbc file into sensor database

In rare cases a file can contain a leading TAB character at the beginning of a "SG_" line. This caused the import to not read any sensor at all.

FIX1025: Cursor sync with maps

With version 5.1 the cursor sync between graphs/video and maps didn't work correctly. Sync was off by a factor of 2 and zoomed sync (graph was zoomed) didn't work at all.

FIX1026: Error message "Unexpected error loading catman: component File.OCX or one of its dependencies not correctly registered: a file is missing or invalid"

This error could appear if the setup program needed to restart the computer after the installation. Depending on the user account in effect during this restart the registration of OCX components could fail due to missing privileges. With version 5.2 catman ensures the registration after a computer restart regardless of the type of user account.
For this to work the SYSTEM account must be available and the Scheduled Task function of Windows must not be deactivated.

FIX1027: Digital indicators

Digital indicators will no longer show a previous value after loading a project. Instead they will show 0.

FIX1028: Visual panel object "Data table"

Setting font type and size for this object had no effect

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FIX1029: MGCplus ML460 invalid frequency range

Depending on the input characteristics (i.e. transforming kHz into engineering units) of a sensor an invalid frequency range (not supported by ML460) could be selected. This resulted in a "Sensor not supported by hardware" error.

FIX1030: MX840 CANbus - DAQ could not be started (Error: Unknown reason).

CAN decoders were not activated upon catman project start, so it depended on the activation state of the decoders (e.g. set by MX Assistant) if a DAQ job could be started or not. This error applied to version 5.1.3 only.

FIX1031: EasyScript method EA_Test.GetChannelData

An arrray bounds check introduced with 5.1 did no longer allow to dimension the buffer receiving the sample data to exactly SampleCount-1 (i.e. 0 to SampleCount-1 elements). The upper bound of the array needed to be SampleCount at least.

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FIX1032: Incorrect DAQ status displays if MX471 CAN raw channels present

If CANRaw receivers were activated and the MX471 was the last device in the DAQ project, the DAQ status information like remaining disk space and RT lag where incorrect.

FIX1033: MGCplus frequency measurement with ML60 and ML460

The sensor options "5V/100 mV input" (ML60) and "Direct/Integrating" (ML460) where not provided.

PRB 1: MGCplus CP52 with more than 256 channels (relevant for ML71 CAN bus cards only)

catman currently only supports up to 256 channels per device in one sample rate group. The CP52 however supports up to 512 channels per device - in case the channel number exceeds 256 and all are in the same sample rate group a DAQ error BLOCK_TOO_LARGE occurs. Workaround: put all channels above 256 in another sample rate group.

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FIX980: QuantumX/SomatXR - DAQ job aborts with error

Automatic time change (winter to summer) of the operating system frequently caused a measurement interruption. Also setting the PC clock time to the future by more than 5 seconds frequently caused a measurement interruption.

FIX981: Replay of SIE file video content

Positioning the video via cursor synchronization did not update the time and scrollbar position.

FIX982: FTP configuration

Leaving the input field "Target directory" empty frequently caused repeated warning messages.

FIX983: SIE file conversion

.BIN files created by the SIE converter could not be read by nCode GlyphWorks. Only the first channel was loaded.

FIX984: Zooming in large datasets

Under some circumstances the end of the dataset did not become visible. Depending on the size of the dataset and the location of minima and maxima, several seconds of data always remained outside the graph visible area, regardless of zoom level.

FIX985: Recorders

In case a DAQ job containing recorders was started automatically during catman startup or during project load the recorders were not launched. The same applied if the job was started via the standard action of a panel button or via script.

FIX986: Long term cyclic data storage

Storage of full cycles aborted after 24 h if the cycle was defined via time interval (i.e. 1 cycle = 5 s)

FIX987: MDF4 format

Under rare conditions activating the sample reduction (preview) option could corrupt the file.

FIX988: Push notifications

Sending push notifications failed if either the subject or the body contained special characters like ä, ö, ü, ° or µ.

RELEASEnotes

V5.0.1

Overview about the most important new functions

New additional EasyMonitoring module to extend functionality of catman Easy
All functions are also included in catmanAP

- Parallel recording: Define parallel recordings with individual triggers and files
- FTP/SFTP upload: Automatic upload of measurement files to an FTP/SFTP server
- Push notifications: Automated sending of push messages to smart phones or tablets triggered by detected events/alarms
- Integration of Vaisala weather station to measure wind speed, barometric pressure, air temperature, humidity, rainfall and hail

New functions for vehicle testing

- Acquisition, display and analysis of CAN raw data
- Extended support for CCP/XCP communication

New functions for lab testing

- Use CX22B as Firewire gateway
- New peak-valley computation

New general functions

- Zoom In and Zoom Out visualization
- Favourite folders in PostProcess

For more functions, details, modifications and fixes please read below.

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FUN401: Acquisition, display and analysis of CAN raw messages

With version 5 catman can acquire and store raw CAN messages from a QuantumX MX471 module. Incoming messages can be displayed in a table including filtering for a certain message ID. catman event monitoring supports a new type of event "CAN message received". This event is triggered if a specific CAN message ID is received.
To acquire CAN raw messages on a MX471 firmware 4.8 or higher is required!

In analysis mode catman can display the raw messages in tabular manner and apply filtering. Export to an ASCII text file is supported. A new computation function allows decoding specific signals from the raw message stream based upon a Vector CANdb file. Raw messages can also be analyzed from a SIE file generated by a Somat CX23R. See topic CAN raw messages in catman for more details.

FUN402: CCP/XCP transmission control

Together with a QuantumX MX471 catman can start/stop the transmission of CCP/XCP messages from an ECU. Transmission can be controlled via EasyScript, executed automatically upon DAQ job start or controlled via event monitoring.
To use this function on a MX471 firmware 4.8 or higher is required and the module must be parametrized to support CCP/XCP via MXAssistant. It is not possible to do this configuration from within catman.

FUN403: Multiple data recordings

With version 5 catman introduces a new powerful concept of data recordings. Each DAQ job can have a subset of up to 15 data recorders. Each recorder runs a separate and independent data storage process based upon individual start/stop trigger conditions. It has its own set of channels to be recorded and individual sample rates including downsampling. Recordings can be repeated, i.e. after one recording the recorder again starts waiting for a trigger. A good example for the use of recorders is the monitoring of a railway bridge, where each of two tracks should be monitored separately.
Each recorder generates its own data file and also supports FTP upload.
Data recorders and FTP upload require an EasyMonitoring license or a catmanAP license.
See Data Recorders for more details.

FUN404: Event driven push notifications

Push notifications are short messages which can be send via the HBM Push Server (a service offered by HBM in the internet) to any mobile smart device (e.g. iPhone, Android based devices) worldwide. Push notifications will be sent event driven by the catman event monitoring engine.
See Push notifications for more details.

FUN405: FTP/SFTP support

Data files generated after a DAQ job can be automatically uploaded to a FTP server. SFTP with authentication and data encryption is supported. The FTP upload runs asynchronously in the background so it does not block further DAQ jobs. If a DAQ job contains video capture the video files can also be uploaded. FTP configuration is part of the DAQ job settings, register tab "Remote data storage". See the knowledgebase article FTP Upload for more details.

FTP upload requires an EasyMonitoring license or a catmanAP license.

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FUN406: Support for Vaisala weather station WXT520

The weather station must be added as a manual device (in HBM Device Manager use "Add additional devices"). The channels to acquire are selectable and comprise wind speed and direction, barometric pressure, air temperature, rel. humidity, rainfall and hail. Observe that the WXT must be configured properly (use the Vaisala configuration software tool) for catman to be able to acquire the weather data:

- Automatic composite NMEA messages must be turned ON
- All other messages must be turned OFF
- In the composite message config panel (the right hand panel in the Vaisala config tool) the messages "min/max wind speed, direction" must be turned OFF

FUN407: Support Quantum/SomatXR modules

- Support for MX809 temperature and DC voltage module
- Support for thermocouple type C
- Support for digital RS485 crankshaft-wheel sensors

FUN408: CX22B routing functions

Instead of acting as an autonomous data recorder the CX22B can also act as a router, similar to a QuantumX CX27. In contrast to the CX27 the CX22B has a throughput performance of a factor 10 higher! Up to 3 MS/s can be acquired. A CX22B which is configured as a router will show up in the catman HBM Device Manager together with the modules connected to it.

FUN409: Analysis mode Test Explorer

Several new features have been added to the Test Explorer:

- Search filter for file names (i.e. typing "vehi" will list all files with "vehicle" in their name)
- Load a test to the analysis project using a standard Windows file dialog, including multiple file selection
- The "Favourites" group in the file explorer view collects your favourite folders
- Search for files in a specific folder and its subfolders.
- Show file comment in the list of search results.
- Improved display of file details and loading of single channels into the analysis project. See tab "Channels" of the Test Explorer file view. Drag or double-click a channel to the analysis project to load it.

FUN410: CX23 SIE file support

Several improvements were made related to the conversion of SIE files into catman standard .BIN and further analysis:

- Video frames will no longer extracted as individual JPEG files. Instead all video frames are extracted into a single file (extension .video). catman can use this file as source for the video player object and synchronizes it with other data. The SIE video channel appears in the analysis project and can simply be dragged to the video player. The video replay also supports the new CX23 video burst mode.
- GPS raw messages (NMEA messages) including timestamps can be extracted to a separate text file.
- Start time of test and test description will be recognized.

FUN411: Online computation channels

The algebraic formula editor computations supports new functions allowing the control of formula parameters via user interface elements or process variables during a running DAQ job:

- input(ObjectName) returns the current value of a panel object (e.g. a slider position or a textbox content)
- cursorx(GraphName) returns the x-value of a graph cursor
- cursory(GraphName) returns the y-value of a graph cursor
- procvar(VarName) returns the current value of a process variable. The % characters usually enclosing the variable name can be omitted.

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The following example changes an IF condition at DAQ job runtime: if(Acceleration > input(Slider_AccelLevel), 1, 0)

FUN412: Online computation channels and analysis mode computations

A new computation in the group "Fixed formula" provides the computation of a polynomial y= a0 + a1*x + a2*x² + ... This computation executes significantly faster than the same expression in the formula editor.

FUN413: Visualization - shrink or enlarge panel area, object resize

Two new ribbon controls in the Visualization ribbon allow to up/downscale all objects on a panel by 10%. This is useful if a project contains a visualization created on a computer with a high screen resolution and the project is loaded on a computer with a lower screen resolution. Related to this is another new option for standard, polar and 3D graphs: "Dynamic font size" (see graph configuration dialog register tab "Layout" or register tab "Fonts/Colors"). If this option is set catman will automatically adjust font sizes if the graph size changes.

FUN414: Visualization - LED object

With version 5 the LED object exposes additional operation modi:

- Digital input state: links the LED to a digital input of your hardware and reflects the state of the input. Just select the DIO channel in the configuration dialog of the LED.
- Simple level monitoring: allows you to monitor any channel for level crossing without the need of creating a limit value first. Just select the channel to be monitored in the configuration dialog of the LED and enter a level value.

FUN415: Analog-OUT and Digital-OUT control

With version 5 you may link a visual object of type controller (slider, knob, switchslider or switch) to an analog or digital output of your hardware. Just select the A-OUT or DIG-OUT channel in the configuration dialog of the controller.
This functionality is currently only supported by QuantumX/SomatXR MX878/879 and PMX 878!
Observe that on the MX878 or MX879 the analog outputs must be activated for the controllers to work. Right click to the Sensor/Function column in the catman channel list to open the configuration dialog for the analog outputs and activate the outputs with an empty source reference.

FUN416: QuantumX OnBoard math - PID controller

With version 5 the real-time PID controller of the MX878/879 can be fully configured. Formerly this type of math was not supported by catman (only MX Assist). See QuantumX OnBoard math for more details.

FUN417: EasyScript - sensor adaptation

A new method EA_IO.AdaptSensor allows to manipulate the hardware configuration of a channel. It can be used on a channel where a sensor from the sensor database is already assigned, but can also be used to configure the hardware without a sensor assigned. A typical example for the use of this function is the assignment of an individual gage factor to channels, which all have the same generic S/G sensor assigned. See the EasyScript reference for more details.

FUN418: Optical interrogator FS22 DI

catman version 5 supports the 1000 Hz sample rate.

MOD342: GPS support

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Formerly the number of channels allocated for a GPS device could not be altered. With catman version 5 you may select which GPS channel shall be included in your project. So for instance you can have a project containing only the LAT and LONG channels.

MOD343: Cursor window

This window can now be minimized.

MOD344: Display of units

Version 5 adds a significant usability enhancement regarding the display of units in graph axis labels and legends. Up to now catman always appended a unit enclosed in []. Not everybody likes this and it is not conformal to some standards like DIN. We thus added a new option (OPTIONS/PANELS/DISPLAY OF UNITS) which allows to specify a kind of format string for the unit: the unit is always indicated by %u, everything else is left as is. So a format string like "in %u" would label an axis "Pressure in bar". By default "[%u] is preset.

MOD345: Channel health check

Added full and halfbridge channels of SomatXR MX840B-R to list of channels with internal shunt test.

MOD346: QuantumX MX471 CANBus support

Activation/Deactivation of CAN channels on the MX471: up to now this was a "logical" operation restricted to catman - the decoder in the hardware was not touched. The user could gain the impression that he could lower the computation load on the module by deactivating some decoders, but that wasn't true. With 5.0 CAN decoders and the raw receivers are really deactivated/activated if the user does a channel activation or deactivation.

MOD347: Peak-valley computation

If the COUNTER channel is displayed in the graph, the first value will be plotted vs. 1 (cycle) not vs. 0 as before.

MOD348: Event monitoring and limit values dialog

The way this dialog is operated has changed:

- NEW does no longer use the settings currently entered, but creates a new event with default settings.
- APPLY and DISCARD buttons were removed - any change in the settings section immediately applies to the event currently selected in the event list.

MOD349: Communication logging

A new option (OPTIONS/SAFETY/ALWAYS LOG DEVICE COMMUNICATION) allows enabling the communication log automatically with catman start. Additionally the log file storage scheme has been changed: formerly only one log file (COMLOG.LOG) existed. With catman version 5 the last 5 logs will be kept, each with its unique name. This number can be changed in the catman registry DEFAULTS/MAXCOMLOGFILES.

MOD350: Panel scrollbars

catman will automatically show the scrollbars if visualization objects extend beyond the visible panel area.

MOD351: DAQ data transfer parameters

The transfer parameters "Maximum number of samples per transfer", "Time interval between transfers" and "Transfer read timeout" which formerly were located under OPTIONS/DAQ CHANNELS are now part of the DAQ

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job and thus part of a DAQ project. See "DAQ job configuration/Advanced settings/Data transfer and error handling".

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MOD352: QuantumX MX879 Digital I/O

The channel list of your DAQ project will now show the operation mode (Input, Output) so there is no need to open the DIO configuration window if one wants to know this. In addition, the state of the DIO (high,low) is visualized in the STATUS column of the channel list if the channel is active.

MOD353: GPS devices and Vaisala weather station

It is now possible to modify the serial communication parameters (COM port, baudrate etc.) from within an already opened DAQ project. Right click the device row in the channel list to open the configuration dialog.

MOD354: Online computations Linearization Table and Polynomial

The linearization table or the polynomial coefficients can be saved to file and in this manner reused in other projects or easily applied to other input channels without the need of retyping them.

MOD355: Channel detail info - clipboard function

The channel info window toolbar features a "Copy to clipboard" button allowing to copy the channel detail info, QuantumX XML view, command window or NMEA log to the clipboard.

MOD356: GPS devices and Vaisala weather station

With version 5 it is possible to add QuantumX/Somat XR modules, MGCplus or PMX devices to an already existing project containing GPS or Vaisala. The modules added will always reside before the GPS or Vaisala.

FIX952: GPS delivering too many samples

In certain cases a GPS device delivered more samples per second than to be expected from the sample rate set for the device. This could happen if:

- the GPS used a low sample rate < 10 Hz
- and at least one QuantumX channel was in the same sample rate group

FIX953: Conversion of SIE files and file merging

catman standard format files originating from a SIE file conversion could not be merged. A result file was created but this file could not be opened.

FIX954: Analysis mode FFT graph

RMS and peak output were interchanged: selecting RMS did peak and vice versa.

FIX955: MX879 analog out and digital I/O setup

Depending on the channel list row currently selected, errors could occur when invoking the configuration dialog (context menu or ribbon group "OnBoard"). These errors occurred if the highlighted row belonged to a QuantumX OnBoard math or peak value channel.

FIX956: ASCII file converter

In some cases it could occur that the conversion failed or produced incorrect results if the first line contained text but no column separators.

FIX957: Import of Vector CANdb into sensor database

RELEASEnotes

If multiple CANdb (.dbc) files were imported and two or more of these files contained the same message/signal name, all sensors following this duplicate became invisible in all but the first imported file.

FIX958: Angle synchronous display

- Zoom Out/Zoom Reset did not always restore correct axis scaling.
- Analysis mode: Displaying a computation channel together with a hardware channel caused a "Sample rate mismatch" error even if the sample rates were identical.

FIX960: MX410/411/403 Highspeed mode

catman crashed if a project containing a MX410 was loaded and the MX410 at this moment was in HS mode. This error occurred rarely since catman disables HS mode when terminating.

FIX961: Autosequences

- Save As for a project containing Autosequences could sometimes fail to include the autosequences in the project.
- Loading an Autosequence workbook did only load the first Autosequence in the workbook.

FIX962: Statistics journal

The larger update intervals introduced with 4.2.2 caused the statistics update to fail if interval was larger than 9 hours.

FIX963: Sensor database, import of Vector CANdb (.dbc) files

The import failed if a single message contained a very large number (> 256) of signals.

FIX964: TEDS, display of traceability data

Only the first character of the TEDS model was displayed

FIX965: QuantumX very low sample rates

DAQ jobs using very low rates 0.2 Hz or 0.1 Hz in the decimal sample rate domain failed to start.

FIX970: Data storage failures with 4k sector size disks

Several problems could occur if a disk had a native 4k sector size (large disks > 2 TB):

- Data files (standard .BIN and FastStream) were corrupted and could not be read anymore. All other formats worked without problems.
- If the temporary store was located on such a disk, catman crashed upon startup.

The problems did not occur with 4k sector size disks offering a 512e emulation mode (currently still the majority of disks).

FIX971: QuantumX excitation voltage 7.5 V

This voltage was not properly reflected in traceability data. Instead 10 V was shown.

FIX972: Hybrid systems containing optical interrogators or GPS devices

In case of very low sample rates < 10 Hz the number of samples acquired for the GPS could be too low or too high.

FIX973: Projects containing two GPS devices

RELEASEnotes

Number of samples acquired for the 2nd device was wrong.

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FIX974: Sending CAN messages

In case the message ID was > 2047, catman did not set the Extended 29-Bit Frame bit. This caused the message not to be sent. The error affected the EasyScript command EA_IO.SendCANMessage as well as the CAN option "Send message on DAQ start".

FIX975: Sample rate and filters dialog

In some cases this dialog was not correctly sized if it only displayed the filter settings. Also the "Sample rate domain" combobox was unintentionally visible in this case.

FIX976: GPS

GPS using very low baud rates below 9600 Baud could fail to acquire data correctly.

FIX977: CANbus configuration

catman did not set baudrate and termination after loading a project. Only upon DAQ job start the settings were applied to the hardware. With version 5 these settings will be applied immediately after project load.

FIX978: Analysis projects

An analysis project link to a DAQ project (i.e. an analysis project automatically loaded when switching from DAQ mode to analysis mode) was not preserved between subsequent sessions of catman.