

# RELEASEnotes

## catman Easy / AP / PostProcess

### V5.0.2

#### Legend:

FUN: functional enhancement

MOD: modification

FIX: bug fix

PRB: known problem

#### Fixes

##### **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)

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## **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.

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## V5.0.1

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## 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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## New functions

### **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.

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FTP upload requires an EasyMonitoring license or a catmanAP license.

## **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 be 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  $y = a_0 + a_1 \cdot x + a_2 \cdot x^2 + \dots$ . 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.

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## Modifications

### MOD342: GPS support

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.

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## **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 job and thus part of a DAQ project. See "DAQ job configuration/Advanced settings/Data transfer and error handling".

## **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.

## **Fixes**

### **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**

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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**

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).

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## **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**

Number of samples acquired for the 2nd device was wrong.

## **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.

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