RELEASEnotes

HBM Common API

Version 5.0 – December 2019

MOST IMPORTANT NEW FUNCTIONS

- Support of new QuantumX MX471C /SomatXR MX471C-R
  - o DAQ of CAN/CAN-FD signals
  - o Support of Ethernet gateway functionality. Connect several modules over Firewire and use one Ethernet cable for connection to PC
- Read module calibration certificate (QuantumX, SomatXR, PMX)

IMPROVEMENTS AND BUG FIXES

- Several new sensors in HBM sensor database

For further improvements and more details please read the manual.

Requirements

To use the HBM Common API your system has to meet following requirements:

- Windows 7, 8.1, 10
- .NET Framework 4
- QuantumX Firmware: 4.2.56 or higher; tested with 4.12.34
- PMX Firmware: 2.04 or higher; tested with 4.00
- MGCplus Firmware: 4.84 or higher; tested with CP52 5.3.3

RELEASEnotes

Version 4.0 – September 2018

MOST IMPORTANT NEW FUNCTIONS

- Firmware update for QuantumX, SomatXR, and MGCplus CP52 DAQ systems
- Support of new hardware
  - MGCplus CP52
  - QuantumX modules MX238B, MX430B
- Change IP settings of QuantumX, SomatXR, and MGCplus CP52 DAQ systems
- Support TEDS handling
  - Activate/deactivate TEDS
  - Read TEDS/write TEDS

IMPROVEMENTS AND BUG FIXES
- Enhanced error and warning messages from device configuration

For further improvements and more details please read the manual.

Supported functions Overview

DAQ System	HBM Common API V4		
	QuantumX	**PMX**	**MGCplus**
Device Scan	✔	✔	✔ (1)
FW Update / Change IP settings	✔		✔
Measurement configuration	✔	✔	✔
Sensor configuration	✔	✔	✔
Analog In DAQ	✔	✔	✔
Analog Out (direct setting)	✔	✔	✔
Analog Out (channel routing)	✔	✔	✔
Digital In/Out DAQ	✔	✔	✔
Digital Out (direct setting)	✔	✔	✔
CAN DAQ	✔	✔ (2)	✔
TEDS	✔	✔	✔
Logging	✔	✔	✔

(1) For CP52
(2) Configuration via CoDeSys/calc. channels;

Requirements

To use the HBM Common API your system has to meet following requirements:
- Windows 7, 8, 10
- .NET Framework 4
- QuantumX Firmware: 4.2.56 or higher; tested with 4.12.20
- PMX Firmware: 2.04 or higher; tested with 3.04
- MGCplus Firmware: 4.84 or higher; tested with CP52 5.3.2

RELEASEnotes

Version 3.1 – March 2016

NEW FUNCTIONS

- Synchronization settings (TimeSource) of devices can be parameterized

IMPROVEMENTS AND BUG FIXES

- Performance optimizations in HBM_QX_Framework.dll

OTHER CHANGES

- Device.TimeSource property has been added: Get information about the quality of the device synchronization
- Device.IsUsingHbmClassicSampleRates property added: Indicates, if the device is using the classic HBM sample rates (e.g. 1200 Hz, 2400 Hz, 4800 Hz, ...) or decimal sample rates (10 Hz, 100 Hz, 1000 Hz, ...)
- MeasurementValues.TotalValueCount property added: Returns the total number of acquired measurement values during a continuous measurement.

RELEASEnotes

Version 3.0 – December 2015

New functions

- Acquisition of CAN signals
- CAN Sensor configuration (CanConnector, CanInChannel, CanInSignal) has been added for QuantumX and MGCplus devices
- Channel configuration using sensor database
    - Access to sensor database
    - Assign sensor to channel
    - Create, edit or delete sensors in database
    - Manage hierarchical groups of sensors
- The API includes an HBM Sensor Database containing HBM sensors and an empty template for a user database. The Hbm.Api.DemoProject shows how to access these databases.
- Logging
    - Logging of the underlying API, e.g. the communication with the devices
    - Add further log-entries, relevant for your application
- Improved device handling
    - Reset device to factory settings
    - Flash LEDs of a device
    - Activate/Deactivate AutoCalibration
    - Activate/Deactivate Shunt
    - Get DeviceStatus and DeviceErrorStatus
    - Use of a common Overflow value (instead of device dependent overview values)
    - Detect lost signals during a measurement. The measurement is no longer aborted when losing one or more signals/devices. The Signal class has some new properties ExcludeFromDaqTimeout, IdleTime and IsExcludedFromDaq
- Get API version information

IMPROVEMENTS AND BUG FIXES

- The scan now supports multiple addresses per adapter and different subnet masks
- SetZeroBalance considers Zero.Target and Zero.IsZeroBalancingInhibited now to calculate new Zero.Offset
- DigitalCompressedSignal updates its MeasurementValues.BufferOverrunOccurred flag now during a measurement
- MeasurementValues.UpdatedValueCount property will be reset now when a new measurement will be prepared
- Device.SetUnit and Device.GetUnit added to set/get the physical unit of a channel that has no sensor (e.g. virtual or digital channels)

RELEASEnotes

OTHER CHANGES

- MeasurementValues.CanRead property has been removed
- Zero.IsZeroBalancingInhibited added
- Signal.ExcludeFromDaqTimeout, Signal.IdleTime and Signal.IsExcludedFromDaq added

Supported functions Overview

DAQ System	HBM Common API V3		
	QuantumX	PMX	MGCplus
Device Scan	✔	✔	(1)
Measurement configuration	✔	✔	✔
Sensor configuration	✔	✔	✔
Analog In DAQ	✔	✔	✔
Analog Out (direct setting)	✔	✔	✔
Analog Out (channel routing)	✔	✔	✔
Digital In/Out DAQ	✔	✔	✔
Digital Out (direct setting)	✔	✔	✔
CAN DAQ	✔	✔ (2)	✔
Logging	✔	✔	✔

(1) Not supported by hardware
(2) Configuration via CoDeSys/calc. channels;

Requirements

To use the HBM Common API your system has to meet following requirements:
- Windows XP, Vista, 7, 8, 10
- .NET Framework 4.0
- QuantumX Firmware: 4.2.56 or higher
- PMX Firmware: 2.04 or higher

MGCplus Firmware: 4.84 or higher

Version 2.0R2 – June 2015

IMPROVEMENTS AND BUG FIXES

- Decimal sample rate domain introduced with the QuantumX B Hardware platform: The last active channel of a module might show a small time asynchronicity of up to 5 ms compared to the other channels. This problem is fixed in Version 2.0R2. The Classical sample rate domain was not concerned.
- In case that faulty external DLLs were located in the Common API folder it could happen that an exception was thrown, even if the DLL was not used. This will not happen anymore.

Version 2.0 – February 2015

New functions

- API is now installed via setup program
- Digital I/O signals added for QuantumX, PMX and MGC+
- Analog Out signals added for QuantumX, PMX and MGC+

IMPROVEMENTS AND BUG FIXES

- Device now supports constructors with full connection details with IP and port
- Device now supports methods to change the name of a channel/signal without assigning the whole channel/signal (SetChannelName / SetSignalName)
- DaqMeasurement.AddSignal method now checks for IsMeasurable = true on the given signal and throws exception if set to false
- QuantumX:
    - High-Speed mode (MX410, MX403) is now supported
    - Performance optimization for ReadSingleMeasurementValues on MX840/A/B
    - Changes on a sensor are now correctly reflected in the object model (BUG FIX)
    - Additional Features: EnableLedBlinking/DisableLedBlinking more versatile

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OTHER CHANGES

- Common.Entities.Channels.PhysicalChannel class renamed to AnalogInChannel
- Common.Entities.Device.GetAllChannelsOfCurrentDevice function renamed to GetAllChannels
- Common.Entities.Device.GetAllSignalsOfCurrentDevice function renamed to GetAllSignals

- QuantumX:
  - Property IsRealTimeAvailable renamed to IsIsochronous
  - EnableConnector/DisableConnector signature changed

Supported functions Overview

DAQ System	HBM Common API V2		
	QuantumX	**PMX**	**MGCplus**
Device Scan	✔	✔	(1)
Measurement configuration	✔	✔	✔
Sensor configuration	✔	✔	✔
Analog In DAQ	✔	✔	✔
Analog Out (direct setting)	✔	✔	✔
Analog Out (channel routing)	✔	✔	✔
Digital In/Out DAQ	✔	✔	✔
Digital Out (direct setting)	✔	✔	✔
CAN DAQ		✔ (2)	

(1) Not supported by hardware
(2) Configuration via CoDeSys/calc. channels;

RELEASEnotes

Version 1.0 – Initial Release - July 2014

Supported functions Overview

DAQ System	HBM Common API V1		
	QuantumX	**PMX**	**MGCplus**
Device Scan	✓	✓	(1)
Measurement configuration	✓	✓	✓
Sensor configuration	✓	✓	✓
Analog In DAQ	✓	✓	✓
Analog Out (direct setting)	✓		
Analog Out (channel routing)			
Digital In/Out DAQ	✓	✓	
Digital Out (direct setting)	✓	✓	
CAN DAQ			

(1) Not supported by hardware
(2) Sample rate and filter frequency
(3) There are no dedicated VIs for sensor configuration (nevertheless it is possible to setup sensor settings by using the API directly)

Requirements

To use the HBM Common API your system has to meet following requirements:

- Windows XP, Vista, 7, 8
- .NET Framework 4.0
- QuantumX Firmware: 4.0.24 or higher
- PMX Firmware: 1.44 or higher
- MGCplus Firmware: 4.74 or higher

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