



## April 2016 Version 1.10.0

Thank you for choosing HBM for your test, analysis and measurement task. This document shows the released product package of SomatXR. Please always check whether an updated version is available at: <http://www.hbm.com>. Please note that the firmware has been optimized. We recommend installing the latest firmware on all existing modules.

### What's new?

#### Modules

- **New Modules**
  - QuantumX: Analog Voltage Output 1-MX878B

#### Firmware

- CX23-R Firmware Version 1.10.0 (Build 2330)
- MX Module Firmware Version 4.2.56.0
  - Included in CX23-R firmware to update from the Web Interface.

#### Software Tools

- **New Software Tools**
  - HBM Device Manager v1.0.0.1
- **Updated Software Tools**
  - None



## What's new? (cont'd)

### Documentation

- **New Documents**
  - MX878B Data Sheet (English / German)
  - SomatXR Uninterruptable Power Supply Data Sheet (English / German)
- **Modified Documents**
  - CX23-R / EX23-R User Manual
  - CX23-R Data Sheet
  - CX23-R Quick Start Guide
  - SomatXR Accessories Data Sheet (English / German)
  - MX1615B-R Data Sheet (English / German)
  - MX Modules User Manual (English / German)

### Accessories

- **New Accessories**
  - SomatXR Uninterruptable Power Supply 1-UPX002-2
  - ICP, with BNC .3M 840BR adapter 1-KAB430-0.3
  - K type thermal couple .3M 840BR adapter 1-SCM-R-TCK-2
  - ¼ bridge 120 .3M 840BR adapter 1-SCM-R-SG120-2
  - ¼ bridge 350 .3M 840BR adapter 1-SCM-R-SG350-2
  - ¼ bridge 1000 .3M 840BR Adapter 1-SCM-R-SG1000-2
  - Voltage conditioner .3M 840BR adapter 1-SCM-R-VC60-2
- **Modified Accessories**
  - None

A complete listing of all supported modules, accessories, and documentation of the SomatXR line is available at the end of these release notes.



### Notes about the CX23-R firmware v1.10.0

- **New Features**
  - **Spectrum Chart display type is now available.** Added a spectrum chart display type that allows users to view channel data in the frequency domain. See the Help system for more information.
  - **Video camera live displays are now available in the hardware panel.** As part as a viable means to check camera output when configuring a test, the camera live displays, as well as rotate, and freeze/unfreeze capabilities have been added to the hardware panel for video camera channels.
  - **Video camera live displays are now available as a display view in all browsers.** Video live displays can now be configured along with other charts and gauges under display views. Freezing the video feed, and rotating the video feed in 90 degree increments is also supported.
  - **Bitmap Trigger computed channel is now supported.** The Bitmap Trigger computed channel is now supported which is used to supplement the Anomaly Detect computed channel. See the Help system for more information.
  - **Event Slice DataMode is now supported.** The Event Slice DataMode is now supported. See the Help system for more information.
  - **Function Generator computed channel is now supported.** The Function Generator computed channel is now supported. See the Help system for more information.
  - **Triggered Zero Suppression computed channel is now supported.** The Triggered Zero Suppression computed channel is now supported. See the Help system for more information.
  - **Special use adapters for the MX840B-R are now supported.** Type K thermocouple adapters, ICP adapters, and
  - **Digital SSI encoders supported on the MX840B-R module.** Digital SSI encoders are now supported for use with the MX840B-R module on connectors 5 – 8.
  - **Added additional supported cameras.** The CX23-R now supports using the Axis Q1775, M1124, and P1357 cameras in addition to the Axis 211, M1103, M7001, M7011, P1311, P1344 HD, and P1346 HD.
  - **User preference added to support retaining chart displays even if navigating away from the displays page.** Added a new user preference for run time displays to deactivate the chart displays when viewing other pages. This was previously the default behavior. The default for this new preference is to continue to run the chart displays when viewing other pages.
  - **Support for eDAQ CAN database files.** eDAQ CAN (.txt) database files can now be imported and used with CAN sources connected to any of the CX23-R CAN input ports. However, they cannot be used for CAN sources connected to the MX471B-R or MX840B-R CAN ports because these interfaces are limited to supporting the Vector DBC style of CAN message processing.
  - **Support for CAN input on MX840B-R connector 1.** Extended the CX23-R system code and user interface to support CAN bus inputs on MX840B-R connector 1.
  - **Support for computing equivalent shunt from a known shunt.** Added support for automatically computing an equivalent shunt from a known shunt. This is possible within the single channel editor configuration window. See the Help system for more information.
  - **Support for Profile Generator computed channel.** Added a new Profile Generator computed channel. This is currently provided exclusively to assist



- with HBM internal product development and quality assurance testing. It is currently not supported for any other users. See the Help system for more information.
- **Support for Function Generator computed channel.** Added a new Function Generator computed channel. This is provided primarily to assist with HBM internal product development and quality assurance testing; however, it is available to users. See the Help system for more information
  - **Always on live displays option.** Enhanced the Live Updates functionality to support an "always on" mode, and to display the channel readings and units in all of the Channel view tabs as well as in the new graphical Hardware view. Refer to the Help system for more information.
  - **Help Topic on CX23-R LED States.** An extensive help topic was added to describe the LED states of the CX23-R for user reference.
  - **Support for module name aliasing.** Support has been added to alias the names of modules as needed by the user. More information is available in the help system.
  - **GPS regulation of CX23-R sample clock.** Added a system preference for using the GPS heartbeat signal to regulate the CX23-R sample clock. See the Help for more information.
  - **Test start delay maximum delay increased.** The test start delay option maximum has been increased to 30 seconds to support certain types of IEPE accelerometers when automatic test restarts on power cycles is anticipated.
- **Optimizations**
    - **Computed Channel editing in spreadsheet interface now supported.** Full editing of computed channel parameters in the spreadsheet interface is now supported.
    - **Various enhancements to user preferences.** User preferences have been enhanced to include changing the default number of decimal points from 3 to 2, changing the default of the log window size to a non-maximized size, and a reminder that default options for test setups applies only to new setups and existing setups need to be updated in the Test configuration/Setup view.
    - **Better visibility of affected channel parameters when changing sample rate.** The All channels tab now has the Sample rate column and any other dependent columns that may apply (filters / speed). Any other setup view that has the Sample rate column will also be purple in color.
    - **Power Micro controls tweaked to better handle electrical irregularities.** Various tweaks were made to the timing parameters of the power micro to better handle under voltage situations which may cause the graceful shutdown of the CX23-R, as well as the automatic restart of the CX23-R when electrical continuity is restored.
    - **Zeroing, Shunt scaling, and Two point scaling tasks supported in single channel edit dialogue window.** Prior to this release, Zeroing, Shunt scaling, and Two point scaling tasks were not supported in the single channel edit dialogue box. These functions are now fully supported in the single channel edit dialogue box.
    - **CX23-R calibration certificate download button moved.** In accordance with the newly redesigned hardware page, the CX23-R calibration certificate is no longer downloadable in the old location under system preferences, and is available in the hardware page when configuring the CX23-R.
    - **Users can now reset user preferences to defaults.** A new button in the user preferences dialog has been added to reset all user preferences back to default. When using this feature, the user will be prompted to download the



current state of the user preferences if the prior configuration needs to be restored.

- **Input and output channel setup configuration interface improvements.** For better clarity in the setup portion of the web interface, channel configurations have been split into two sub categories “input channels” and “output channels.” Computed channels and DataModes are still present as their own configuration panes.
- **Display context menu added to expedite configuration.** A right click interface was added to the display tabs in order to expedite configuration of displays. Quick configuration changes for saving display settings, saving display settings as, renaming displays and deleting displays were added.
- **New test button operation improved.** To avoid potential for multiple SXR files being generated with the same name in quick succession from multiple mouse clicks, a very slight timing delay was introduced on the new test button.
- **Improved intuitive operation of check boxes in the user interface.** Enhanced the user interface to persist the state of the Channel list check boxes until the user actually changes the state of the check boxes. Prior to this, the user interface unnecessarily cleared the check boxes on various user interface events, which was frequently a user annoyance.
- **User is notified if shunt scaling task needs to be followed by a zero task.** Extended the shunt scaling task to include an option for the user to zero (i.e., balance) channels that may not be accurately zeroed after the shunt scaling is completed. The shunt scaling is always done using AC excitation at the highest available excitation range (as a function of bridge resistance) to provide optimal scaling accuracy. If the user has specified DC excitation or a lower excitation range for a channel, zeroing will usually be required.
- **Automatic filtering based on applicable shunt and two point scaling.** Improved the user interface to simplify performing shunt scaling on all channels defined with the internal shunt resistor scaling mode. The user can now select all channels in the test and the user interface will filter out all channels that are not applicable. Note that this interface improvement is also implemented for the experimental two point scaling mode.
- **Automatic recovery of corrupted FPGA configuration.** If a sudden power loss or other issue interrupted the FPGA update process during a CX23-R firmware upgrade or downgrade, the FPGA could be corrupted and leave the CX23-R in an unknown state. Automatic recovery of the FPGA is now checked on every boot and recoverable if found to be corrupt.
- **Massive redesign of hardware panel.** The Hardware panel was redesigned to be more user friendly and provide both a high level graphical view of the system and all connected modules, as well as a streamlined interface for channel configurations. See Help system for more information.
- **Host name field removed in Network dialogue window.** Removed the Host name field in the Network dialog window and the unassociated Host name display field in the status banner to eliminate user confusion.
- **Automatic HBM Sensor Database (SDBX) migration.** HBM Sensor Database (SDBX) files no longer need to be exported before firmware updates, and reimported after. On firmware update, the sensor database will automatically be migrated.
- **Profile and user management.** Profile, user, and privileges management was improved with correlating defaults and a proper migration path for profiles, and users previously configured without certain profiles or privileges.
- **Non unique database channel used on multiple connectors now automatically creates unique connector name.** Previously when an imported database channel (such as a CAN channel from a dbc file) is used





on a connector, and then used again on another connector, a unique connector name was not generated automatically. Now, “\_copy\_#” where # is the lowest integer available to create a unique name is appended to the connector name to avoid naming conflicts automatically.

- **Bugs Fixed / Issues Resolved**

- **Issue with display settings not saving on the first attempt when removing channels from the test with a display.** When removing a channel from a test where that channel was also in a saved display, the display would not save properly the first time a save is requested. This issue has been resolved, and the display will now save properly the first time a save is requested.
- **Issue with restoring size of sensor panel and channels list panel if resized.** When attempting to restore the size of the sensor panel after having resized it, the sensor panel would restore to a larger setting than default. This issue has been resolved.
- **Unsaved changes to charts are lost when test is started.** In certain situations, unsaved changes to charts would be lost if a test was started on the system. Now, the user is alerted to save any unsaved changes before running a test, and warns that changes will be lost if the user opts to start the test without saving. A user preference has been added to control whether or not the user is alerted at all in this circumstance as well.
- **Deleting last setup destabilized GUI interface.** Under certain conditions, when deleting the last viable setup on the CX23-R, there would be erratic messages being displayed to the GUI. This issue has been resolved.
- **Plot colors affected on addition and deletion of another channel.** If a channel was removed from a Strip Chart display with multiple channels, and later added again, the color of the trace for that channel was not restored. This typically resulted in the undesirable situation where two different channels were displayed with the same trace color. This issue has been resolved.
- **Issue with Strain Gage units.** For MX module Bridge channels defined to use Strain gage scaling mode, the GUI did not present the correct options for Units in the drop down list. It incorrectly presented temperature units instead. This issue has been resolved.
- **Signal calculator computed channel and CAN input channel issue.** If a user attempted to run a test with one or more CAN channels used in a Signal Calculator computed channel, the CX23-R reset on error. This issue has been resolved.
- **Editing setups during test runs system preference not updated during multiple client connect.** In the event that multiple clients are connected to the CX23-R and one of the clients updates the system preference “Allow editing other setups during test runs,” the setting would not propagate to the other client. This issue has been resolved.
- **‘Copy to’ function with prerun zero mode issue.** Fixed a bug where the ‘Copy to...’ task would not copy the prerun zero mode information.
- **MX471B-R CAN channel sample rate drop down missing.** Fixed an issue with the user interface not presenting a drop down selection list for defining the sample rate of an MX471B-R CAN channel.
- **Inconsistent list of setups on multiple client connections.** In the event that multiple users are connected to the CX23-R via a GUI session, and a setup was deleted, the change would not be reflected in the other connected sessions. This issue has been resolved.



- **Allowing video channels as input channels for DataModes which do not support message channels.** Fixed a user interface bug that resulted in video channels being incorrectly included as available input channels for all DataModes. The Message Logger is the only DataMode that supports Video channels and other message channels as input channels.
- **Charts and Decimal mode Y-axis issue.** Previously under certain conditions the Y-axis auto scale limits in the chart would intermittently scale up to 20 decimal places. This and other issues relating to intermittent auto scaling issues in charts were fixed.
- **First sample timestamp issue.** Previously under certain conditions and configurations, a test would not start successfully due to a first sample time stamp error. This issue has been corrected by introducing two-stage test start mechanisms greatly improving robustness of the test start process.
- **Erratic column sorting in databases issue.** Previously when sorting across sensors in a sensor database, duplicated names of one sort type would then sort erratically within the values of that common duplicated name. Now if duplicate values are detected during a column sort, the secondary sort will be done using the connector name.
- **Erroneously permitted duplicate profile names issue.** Previously duplicate profile names were allowable and not disallowed by the system. Now if a duplicate profile name is attempted to be saved, an error message will be given to the user to provide a unique name. This issue has been resolved.
- **MX840B-R encoder SDBX interface issue.** Fixed an issue with the SDBX interface handling of MX840B-R Encoder Counter sensors; the Encoder index reset and Encoder index divisor parameters were not being assigned properly. This issue has been resolved.
- **Known Issues and Advisories**
  - **Extracting raw data from SIE files using the web interface may be unreliable for large datasets.** The SIE file data itself is not affected, and can still be retrieved by downloading the SIE file to a PC. This issue is being investigated and SIE data extraction capabilities will be improved in a future release. A warning message when extracting raw data from CAN, GPS, and video channels will be issued when attempting to do so.
  - **MX840B-R Quarter Bridge Adapters and currently supported MX firmware issues.** There is an issue with the new 1/4 bridge adapter modules for the MX840B-R and MX411B-R. Some of the 'Max electrical' options available in the user interface are not supported by the current MX firmware (4.2.56.0). If the user selects an unsupported option the MX module will automatically switch to a supported option that will be higher. As such, the data acquired will be valid but will have somewhat reduced resolution. This issue will be fixed in the next CX23-R release that will use a new version of the MX firmware.
  - **Test setups containing 60 Hz channels on MX modules may intermittently fail to start.** A known issue causes occasional test start errors when a test setup using the Classic data rate domain contains one or more MX channels at 60 Hz sample rates. This issue is being investigated. To avoid test start errors, we recommend using the Decimal data rate domain with MX modules where possible.
  - **Issue with disconnecting the CX23-R Host port cable when a test is running with chart displays.** There is an ongoing issue where disconnecting the CX23-R Host port while running a test with chart displays may stop on error. The test will auto restart normally after the error reset (unless the user



has disabled this feature in system preferences). To avoid this undesirable situation, all clients should log off before the Host port cable is disconnected. The solution to this issue is currently under investigation.

- **Issue with MX840B-R Encoder frequency and Pulse frequency channels.** Very rarely, MX840B-R Encoder frequency and Pulse frequency channels will not measure frequency (i.e., the output will be frozen at some fixed value). This has been observed using the MX Assistant as well as when using the CX23-R. It has been observed on channels 5-7, but never on channel 8. As such, it is advised that any applicable sensor be connected to channel 8. It is strongly advised that the user always verify that the sensor is working properly before running SIE tests.
- **Users with previously undefined profiles.** If users have been previously configured with no profile, those users will be given read only permissions until a profile is assigned. This is an advisory effective if upgrading from v1.8.3 or earlier firmware.
- **Camera live displays are not currently supported using Internet Explorer.** This issue is further being investigated.
- **Caution when using Netgear networking interfaces with the CX23-R.** Certain Netgear switches and routers have been known to not work reliably when connected to the Host port of the CX23-R. The problem will manifest as the Netgear networking interface showing the CX23-R is not connected when in fact it is. In certain situations, a power cycle of the Netgear networking interfaces can correct the problem. For these reasons, it is strongly recommended that for any high availability or high assurance test platforms, that Netgear networking interfaces not be used to connect to the CX23-R Host port.
- **Caution when using SSL connections with Safari web browser.** When using the Safari browser with secure socket layer connections, the live displays and live updates in the web interface may not work properly without special certificate configuration. See the help system topic for more information.
- **Caution when using Firewire with MX Modules.** In certain atypical usage scenarios, MX modules can lose PTP sync when a test run is restarted after a reboot. See the help system topic that discusses setting up the SomatXR system for more information.





### Complete Listing of Modules, Accessories, Documentation and available Support Software Tools

#### Modules

- SomatXR: Data Processor with 16 or 64 GB memory 1-CX23-R-xx-2
- SomatXR: Ethernet Switch PTP 1-EX23-R
- SomatXR: Standard Amplifier 1-MX1601B-R
- SomatXR: Bridge Amplifier 1-MX1615B-R
- SomatXR: Thermo Amplifier 1-MX1609KB-R
- SomatXR: Universal Amplifier 1-MX840B-R
- SomatXR: Highly Dynamic Amplifier 1-MX411B-R
- SomatXR: CAN module 1-MX471B-R
- QuantumX: Analog Voltage Output 1-MX878B

#### Documentation

- CX23-R Data Sheet (English / German) Version 2.1
- CX23-R / EX23-R User Manual Version 4.0
- CX23-R Quick Start Guide Version 3.0
- EX23-R Data Sheet (English / German) Version 1.1 (1.0)
- EX23-R Quick Start Guide Version 1.0
- SomatXR Safety Manual Version 1.0
- SomatXR Accessories Data Sheet (English / German) Version 4.0
- MX1601B-R Data Sheet (English / German) Version 3.0
- MX1609KB-R Data Sheet (English / German) Version 3.0
- MX1615B-R Data Sheet (English / German) Version 3.0
- MX840B-R Data Sheet (English / German) Version 1.0
- MX878B Data Sheet (English / German) Version 2.0
- MX411B-R Data Sheet (English / German) Version 1.0
- MX471B-R Data Sheet (English / German) Version 1.0
- MX Modules User Manual (English / German) Version 3.1
- MX Modules Quick Start Guide (English / German) Version 2.0
- NTX003 Data Sheet Version 1.1
- 1-UPX002-2 UPS Data Sheet (English / German) Version 1.0

#### Software Tools

- HBM Device Manager v1.0.0.1



### Accessories

- SomatXR Uninterruptable Power Supply
  - Voltage conditioner .3M 840BR adapter
  - ¼ bridge 1000 .3M 840BR Adapter
  - ¼ bridge 350 .3M 840BR adapter
  - ¼ bridge 120 .3M 840BR adapter
  - K type thermal couple .3M 840BR adapter
  - ICP, with BNC .3M 840BR adapter
  - AC/DC power supply unit (24 V, 120 W)
  - Power supply cable (CX23-R to MX module)
  - Power supply cable (low loss) with exposed wires
  - Mounting brackets
  - Ethernet cable (CX23-R / EX23-R to MX module)
  - Ethernet cable (CX23-R / EX23-R to PC / access point)
  - Ethernet cable (CX23-R to EX23-R)
  - Push-pull sensor cable
  - Break away sensor cable
  - Digital I/O cable with exposed wires
  - GPS/AUX adapter (CX23-R to EGPS-5Hz)
  - CAN adapter (CX23-R to SomatCR KAB292)
  - GPS/AUX cable with exposed wires
  - CAN cable with exposed wires
  - Full-bridge adapter (to eDAQ M8 connector)  
(4 wire - no sense line)
  - Quarter-bridge adapter (to eDAQ M8 connector)  
(3 wire - no sense line)
  - Voltage adapter (to eDAQ M8 connector)
  - ¼ Bridge Adapter (ODU 14 pin to M8F connector)
  - CX23 + eDAQ sync cable (M12 to LEMO)
  - GPS Receiver - 5Hz Update
  - Pelican Case - eDAQ-lite/SXR
  - Pelican Case - eDAQ/eDAQ-lite/SXR
  - AC/DC Power Supply (24 V, 30 W) ODU 4p
  - Plug (ODU 4p push-pull)
  - Power supply (ODU, 5 m, open)
  - Connecting elements
  - Carrying handle
  - 4 protective caps for ODU sensors
  - 2 protective caps for ODU system
  - FireWire ExpressCard adapter
  - FireWire intermodule (ODU, IP68, 2 m)
  - FireWire PC (ODU / FW, IP68, 3 m)
  - FireWire (module to PC, IP68, 5 m)
  - Ethernet cable (IP65/5m)
  - Connector (ODU, 14 pol, IP68)
  - Plug (ODU 14p break-away)
  - 1-wire-EEPROM DS24B33
  - 10 Connectors thermo mini (type K, RFID)
- 1-UPX002-2
  - 1-SCM-R-VC60-2
  - 1-SCM-R-SG1000-2
  - 1-SCM-R-SG350-2
  - 1-SCM-R-SG120-2
  - 1-SCM-R-TCK-2
  - 1-KAB430-0.3
  - 1-NTX003-2
  - 1-KAB2110
  - 1-KAB2115
  - 1-CASEMOUNT
  - 1-KAB2100
  - 1-KAB2106
  - 1-KAB2107
  - 1-KAB183
  - 1-KAB184
  - 1-KAB2101
  - 1-KAB2102
  - 1-KAB2104
  - 1-KAB2108
  - 1-KAB2109
  - 1-KAB2117
  - 1-KAB2118
  - 1-KAB2119
  - 1-KAB2122-0.3
  - 1-KAB2111-2
  - 1-EGPS-5HZ-2
  - 1-PEL1520-2
  - 1-PEL1600-2
  - 1-NTX002
  - 1-CON-P1001
  - 1-KAB294-5
  - 1-CASELINK
  - 1-CASECARRY
  - 1-CON-A2013
  - 1-CON-A2014
  - 1-IF-002
  - 1-KAB272
  - 1-KAB276-3
  - 1-KAB293-5
  - 1-KAB273-5
  - 1-CON-P1007
  - 1-CON-P1016
  - 1-TEDS-PAK
  - 1-THERMO-MINI