August 2018
Version 2.4.3

Thank you for choosing HBM for your test, analysis and measurement task. This document shows the released product package of eDAQXR. 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 / Firmware
- **Firmware**
  - eDAQXR Firmware Version 2.4.3
  - MX Module Firmware Version 4.10.4.0
    - Included in eDAQXR firmware to update from the Web Interface.
- **New Module Support**
  - None

Software Tools / Libraries
- **Software Updates**
  - eDAQXR Emulator v2.4.0
  - XR Download Manager v1.2.2

Documentation
- **New Documentation**
  - None
- **Updated Documentation**
  - eDAQXR User Manual   Version 4.0
  - MX Modules User Manual (English / German)   Version 5.1

Accessories
- **New Accessories**
  - None
- **Updated Accessories**
  - None

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

Notes about the eDAQXR firmware v2.4.3

- **Bugs Fixed / Issues Resolved**

    o **Requires User Action. Layer discovery, and invalid data issue with eDAQXR EBRG layer.** Fixed an issue with the eDAQXR Linux driver that resulted in two problems. First, eDAQXR layers would not always be discovered after a power cycle, firmware update, or software initiated reboot. For networked systems with many layers, this happened fairly frequently. Second and more critical, eDAQXR EBRG layers would sometimes be discovered, but would not be properly configured after a power cycle, firmware update, or software initiated reboot. The data for the layer channels would be invalid and typically just show noise around a fixed value. Physically disconnecting the sensor would not change the data generated. This has always been seen on all 16 channels in a layer. Since there was no error generated by the eDAQXR, when this occurred, it is quite possible that this has affected some SIE file data!
    o **CAN Issues with multiple channels utilizing the same CAN message ID.** Fixed a bug with the XR CAN interface which caused the system to error reset if more than 32 CAN channels have the same CAN message ID.
    o **Test restart issue when running a test with CAN channels near performance limit.** Fixed a bug that resulted in the system not automatically restarting a test that error reset due to CAN buffers overflowing. This bug was observed in a test that was running near 100% CPU load with over 1000 CAN channels and over 60 analog channels.

Notes about the eDAQXR firmware v2.4.0

- **New Features**

    o **ACTION REQUIRED: TCE / eDAQ Channel Calibration functionality.** There is a new System preference to enable using the "Channel calibration locks and dates" functionality that TCE/eDAQ supported unconditionally. This preference is disabled by default. **Carefully consider whether or not you want to use this new functionality before creating new SXR files. When an SXR file is created, it inherits this preference and it cannot be changed.**
    o **Mode 2 Networking Support.** Support for Mode 2 Networking of eDAQXR's is available. There are notable differences and caveats of use between the newly supported Mode 2, and previously supported Mode 1 Networking. Please see the help system to determine which Mode bests suits the need of your test setups.
    o **New column on the SIE management page.** Added a new column "Run description" in the SIE data page. Note that this will only be shown for SIE files generated using the v2.4.0 or later firmware versions - even though the run description is resident in the metadata of all SIE files generated with all previous firmware versions.
    o **Calibration lock / unlock status Support.** Support in the GUI for interactively controlling the Calibration lock / unlock status has been added. For more information see the help system.
    o **Additional GPS channels added as selectable inputs.** Added new "utc_nanoseconds" and "utc_seconds_floor" channels to Garmin and EGPS-200 devices for backwards compatibility with the Somat eDAQ product line. The are respectively the fractional part of the "utc_seconds" channel (in nanoseconds) and the integer part of the "utc_seconds" channel.
    o **Custom parameter channel sorting.** The user can now sort channel lists against custom parameter columns based on text and numeric sorting algorithms.

RELEASEnotes — eDAQ-XR

- o **New Setup task to calculate bridge lead wire resistance.** A new setup task to aid the user in calculating bridge lead wire resistance has been added. Please see the Help system for more information.
- o **XY Plotter Chart Type.** A new chart XY Plotter Chart type has been added as a visualization type. More information is available in the help system.

- **Optimizations**

  - o **Display charts will now function with live update data.** The charts functionality has been enhanced to run and show data while running live updates.
  - o **Over Range Detector notifications now metered.** To avoid deluging the customer with huge numbers of notifications, the Over Range Detector has now been metered.
  - o **AOX file generation in a networked eDAQXR context.** In a networked test, a single AOX file is now generated when the user selects this task on the master node. This AOX file contains all applicable channels from all network nodes. As such, users no longer need to connect to each slave node to get the AOX file containing the channels for that node only.
  - o **Single Channel Editor enhancements.** The Single Channel Editor will now by default be maximized when it's called for visibility and to aid in quick setup changes. Additionally, the user preference "Select cell text on focus" in all single channel editor dialog edit controls will be honored.
  - o **Nomenclature change for zeroing.** Previously appearing "Prerun Zero" has been changed to "Zero" in GUI column names for consistency and to reduce confusion.
  - o **Signal Calculator editing enhancements.** The Signal Calculator editing dialog window has been optimized for better usability and editability.
  - o **Live update indicators for channels being updated.** The channel selection pane in the display views will now indicate with a channel by channel indicator, if the channel in question is being updated during live update tests or not. The icon is an orange refresh insignia with a line through it when that channel is not being updated during live update tests.

- **Bugs Fixed / Issues Resolved**

  - o **Legacy layer communications on boot issue.** eDAQ legacy layer communications on system boot could at times sporadically result in an error reset. The error message reported was 'cannot find qualified eDAQ response parameter ...'. This issue has been corrected.
  - o **Classic data rate domain nominal vs. actual sample rate issue.**
    - This issue affected sequential CX23R/eDAQXR CAN and GPS channels, and MX471 CAN channels only. The sequential MX840 CAN channels were not affected. The raw CAN and GPS message channels were also not affected.
    - The cause of this issue was incorrectly using the nominal Classic domain sample rates instead of the actual Classic domain sample rates in the code used to generate the sequential channel data from the raw message data. As one example, the 300 S/s rate was used instead of the ~300.0781 S/s rate.
    - The correction factor for this is completely deterministic. The sample rate on affected channels is low by a factor of exactly 8388608/8386425 (which is ~1.0002603016183892421383366571573).
    - To fix SIE files subject to this issue, the sample rate for all affected channels needs to be divided by 8388608/8386425. Or more simply, replace the replace the actual Classic domain sample rates resident in the SIE file with the corresponding nominal Classic domain sample rates.
    - SIE file corrections: The above information provides the numerical correction methods needed to correct individual SIE channel data. For channels stored using the SXR Collect storage option or channels stored using any of the sequential DataModes, correcting the SIE file is straightforward.

- However, for computed channels derived from affected channels, things are a little more complex.
  - 1) Most computed channels have only one input channel. For all of these the sample rate of the output channel needs to be set to the corrected sample rate of the input channel.
  - 2) There are 2 computed channels that support more than one input channel with the same sample rate - Signal calculator and Directional velocity.
- If all of the input channels have sample rates that need to be corrected, then the output channel sample rate needs to be set to the corrected sample rate of the input channels. However, if some of the input channel sample rates are incorrect and some are correct, it is not possible to correct the output channel sample rate, and in this case, the channel data should be viewed as invalid.
- **Note: It is advised that any users who are concerned with any of these issues contact HBM customer service for assistance in getting their SIE files corrected.**

o **Binary sample rate sync across legacy eDAQ layers issue.**
  - This issue sources from the sync clock signal distributed to the legacy eDAQ layers. As such, all EBRG, EHHS, EDIO and ENTB layer channels were affected by this issue.
  - By design, the FPGA generates a 98304 Hz clock signal. However, due to a bug in the FPGA, this clock signal was generated at nominally 98280.1 Hz. The exact incorrect clock frequency is not completely deterministic. However, based on multiple tests run for 12 to 24 hours to characterize this, the clock signal was determined to be low by a factor of 1.0002432 with an uncertainty of about +/- 0.000000060. As one example, for an SXR test run for 8 hours using the 512 Hz sample rate, the data skew correction uncertainty would be less than one sample period.
  - To fix SIE files subject to this issue, the sample rate for all affected channels needs to be divided by 1.0002432.

o **Synchronization phase issue with CAN / Raw CAN.**
  - An incorrect phase lag of exactly 0.25 seconds exists for all of these channels.
  - This issue sources from a system code bug that applied the wrong test "pre-start" time to the affected channel types. By design, in the Decimal domain, a "pre-start" time of 1 second is used, and in the Binary domain, a "pre-start" time of 1.25 second is used. However, due to the bug, the 1 second time was used for some channels in the Binary domain.
  - To correct for this, subtract 0.25 seconds from all of the time stamps for applicable channel data. Unfortunately, the SIE files do not support a means to apply such a correction, and as such, this will need to be done in a post processing environment.

o **CAN mask value parsing issue.** Previously, the db_msg_mask SXR parameter was being ignored and as a result all channels behaved as if the db_msg_mask was 0xFFFFFFFF. This issue has been corrected.

o **eDAQ txt database issue with request bytes.** Previously the optional "request" column in the eDAQ CAN txt database was ignored. Now this information will be imported and stored as a new parameter in the internal CAN database format and used as the default value if request messages are enabled for that channel.

o **Issue when running a test with more than one CAN request message.** Previously when more than one CAN request message was on the CAN bus the test running would end. This issue has been corrected.

o **Two point calibration issue.** Previously under certain circumstances, when performing a two point calibration, the system would become unresponsive. This issue has been corrected.

- o **Mode 1 networking: Seamless AOX file generation.** Generating multiple AOX files using the GUI of each eDAQXR node has been fixed to be a single AOX file across all network nodes.
- o **Burst Message Logger DataMode issue with Raw CAN and UTC_date_time channels.** Previously the Burst Message Logger DataMode would not take data for Raw CAN channels, or for UTC_date_time channels. This issue has been corrected.
- o **Duplicate SIE file name generation issue.** In certain situations it would be possible to generate duplicate SIE file names if appending the standard SIE incremental numbering scheme manually. This issue has been resolved.
- o **Rainflow DataMode and unactivated trigger issue.** Previously when using the Rainflow DataMode with a trigger, if the trigger was never activated during the course of the test an error reset would result. This issue has been corrected.
- o **CAN DBC Importer Message name delimiter issue.** Fixed a bug with the CAN Vector DBC importer not honoring the option to prepend the Message name to the Signal name with the "::" delimiter.
- o **CAN DBC Importer issue with big-endian signals.** Previously when attempting to import DBC files containing big-endian signals, the import would fail. This issue has been corrected.
- o **User preference honoring in single channel editor issue.** Previously the "Select cell text on focus" user preference was not being honored in the single channel editor, this issue has been corrected.
- o **State mapper single channel editor issue.** Previously there were validation inconsistencies in the GUI when editing the state mapper computed channel in the single channel editor window. This issue has been resolved.
- o **Various usability enhancements and bug fixes throughout the GUI.** The GUI continued to receive various bug fixes, optimizations, and enhancements to improve usability, speed, and reliability.
- o **Reported total RAM in the GUI issue.** Previously the amount of total RAM on the system would be improperly reported. This issue has been corrected.
- o **Multichannel copy naming issue.** Previously when doing multichannel copy of the name parameter, the copied names would not correspond to normal copied channel naming conventions. This issue has been corrected.
- o **EDIO encoder zeroing issue.** Fixed an issue with eDAQXR EDIO encoder channels not zeroing properly. Sometimes the zero would actually work, but it was not done by setting the hardware register to 0 to ensure that the maximum measurement range was always maintained.
- o **eDAQ CAN txt Database Import Issues.** Previously there were issues preventing eDAQ CAN txt Database imports from succeeding due to CR/LF issues, or automatic naming conventions affecting the import. These issues have been corrected.
- o **DBC file option to append message name issue.** Previously when attempting to import a DBC CAN database, the import would fail as a result of a message name issue. This has been corrected.
- o **eDAQ CAN txt Database parsing issue with db_msg_mask.** Previously when using an eDAQ CAN txt Database which utilized the db_msg_mask, parsing would not work properly and would only return stale data. This issue has been corrected.
- o **CAN request message issue.** Previously when there was more than one CAN request message on a channel caused a memory alignment error. This issue has been corrected.
- o **Two point scaling on multiple channels in a networked environment issue.** Fixed a bug with the user interface locking up when attempting to run Two point scaling on multiple channels distributed across multiple network nodes. When this happened, the user had to refresh the browser to continue - which resulted in losing all unsaved changes.
- o **EDIO Digital Output sink issue.** Fixed a bug with the EDIO layer Digital output channels defined to use the "Clear sink unlatched" mode. This mode was incorrectly interpreted as the

"Set sink unlatched" mode. This bug existed in all previous eDAQXR releases, and has been corrected.

- o **Bridge Leadwire resistance defaults in GUI issue.** Previously the leadwire resistance parameter did not default causing a redline on the channel. This issue has been corrected.
- o **Experimental two point scaling issues.** Previously there would be in certain situations issues defining two point scaling. These issues have been corrected.
- o **EDIO Digital Output Channels issue.** Fixed an issue with the system hanging and requiring a reboot or power cycle if an SXR test was run using one or more EDIO layer Digital output channels while not using any EDIO layer Digital input or Pulse counter channels.
- o **Chart signal loss issues.** Previously when attempting to remove charts with channels where the same channels existed in other charts, signals could disappear. This issue has been corrected.
- o **Channel by Channel TEDS conflicts.** Previously it was not possible to resolve TEDS conflicts on a per channel basis. This deficiency has been corrected, and the user can now resolve TEDS conflicts on a per channel basis.
- o **SDBX Database importing and deleting issues.** Previously if the user attempted to import an SDBX database a second time after it was imported once, it would not be possible to delete the SDBX database. This issue has been corrected.

- • **Known Issues And Advisories**

  - o **SIE file naming conventions when using FTP upload.** Please note that file naming conventions and special character usage can affect whether the FTP server you are uploading to, will accept the file. There are characters that are illegal file name characters in Windows systems, and likewise for Linux systems. Please avoid these illegal characters when considering what operating system your FTP server is running on.
  - o **Intermittent issue with Shunt scaling task and Lead wire resistance calculation tasks.** Both the Shunt scaling task and the Lead wire resistance calculations task have been observed to occasionally fail in some networked eDAQXR systems. When this happens, the shunt resistors are not actually installed for reasons unknown. It is obvious to the user when this happens. Rebooting the eDAQXR appears to always fix this issue. This issue is actively being investigated.
  - o **eDAQ legacy layer discovery after reboot.** In certain situations legacy eDAQ layers may not be discovered after a firmware update by the system. The work around for this issue is to reboot or power cycle your eDAQXR. This issue is actively being investigated.
  - o **Use of HTTP and HTTPS protocols and browser add-ons / extensions when connecting to the eDAQXR.** When performing a firmware upgrade and using the HTTP protocol, a CTRL+F5 refresh of your browser after the firmware update is required to ensure that new features and GUI elements are available. The same is true of the help system. If the user accesses the help system after a firmware update, a CTRL+F5 is required to ensure new help content is made available as well. The optimal performance when using the eDAQXR is realized using the HTTP protocol, inclusive of typical use, as well as download operations from the eDAQXR. Additionally, it is recommended that any browser add-ons or extensions be disabled when using the eDAQXR as their enablement has been linked to degrading performance of the GUI interface when in use.
  - o **Push notifications on iOS devices.** Currently there is a known issue with the iOS HBM Push application, where notifications will not be pushed, but instead have to be fetched by closing or reopening the app on your iOS device, or performing a pull down refresh of the notification list. This issue is being currently looked at for fixing in the next release.
  - o **Spikes on MX840 channels using Pulse or Encoder frequency channels.** Spikes will occur on MX840 channels configured as Pulse frequency or Encoder frequency channels

whenever there are no pulses from the sensor for a period of approximately 107 seconds. The magnitude of the spikes will vary and is not deterministic.

- **Emulator import of MX460 channels.** Currently importing tests into the CX23R Emulator which contain MX460 channels will not automatically populate MX460 hardware on import. This will be corrected in a future release.
- **Issue with propagating changes in the hardware panel.** Changes made to test setup parameters in the Hardware page are currently not propagated to computed channels, output channels, DataModes or display charts like they are when changes are made using the Input channel spreadsheet. Until this is fixed, users should keep this in mind when using the Hardware page to edit channels if the test setup contains computed channels, output channels, DataModes or display charts.
- **Sensor Database support.** The database format is based on what Catman uses today. This has limited functionality at this time, but will evolve over time.
- **Web browser exceptions.** The web browser interface will sometimes lock up or not properly reflect the actual states of the hardware or test. Refreshing the browser will usually correct this.
- **SIE file naming issue.** The "Save data file as" option in the Test Control page persists from one test run to the next only in the Normal test run mode. It does not persist in the Cyclic or Remote control run modes.
- **Recommended browsers.** The recommended browsers when using the eDAQXR web interface are up to date versions of Chrome and Firefox. The web interface may work on other browsers but may result in degraded or undesirable operation.
- **Setups utilizing multiple video channels from a multi-channel video encoder is not supported.** Although the eDAQXR will allow the user to specify multiple video streams from a multi-channel encoder, using more than one channel from a multi-channel encoder is not supported, and configuring a test with this configuration may in not as-configured results, and is at the user's own risk. It is recommended the user only use one channel on a multi-channel video encoder.
- **Live video displays when using the Axis m7001 video encoder.** The Axis m7001 encoder can be used, but there are limitations on video display capabilities with this old and now discontinued Axis product. Video frames will be properly stored in the SIE file; however, viewing of the video frames is supported in the Hardware view only. As such, video frames cannot be displayed when the SIE test is running.
- **Caution when using Netgear networking interfaces.** Certain Netgear switches and routers have been known to not work reliably when connected to the Host port of the eDAQXR. The problem will manifest as the Netgear networking interface showing the eDAQXR 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 eDAQXR Host port.
- **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 eDAQXR system for more information.
- **EX23-R PTP Synchronization with MX modules using ports 5 and 6.** Using a system connected with MX modules connected to ports 5 or 6 on the EX23R can rarely result in the MX modules losing sync with the eDAQXR until the EX23R is rebooted or power cycles. This has only been encountered in QA testing a few times and only when the system has been running for relatively long periods of time (e.g., over a week). However, this can be very problematic for long term unattended testing - particularly in scenarios where power is never cycled. As such, it is strongly advised that MX modules are not connected to ports 5 or 6 in long term unattended tests. Network sources such as Axis cameras can be connected to port 6 (or port 5 when routed through a commercial PoE switch).

eDAQXR System Overview

The following information defines the scope of the eDAQXR system relative to the TCE/eDAQ system. Functionality that is not supported in this first release is noted.

Legacy eDAQ layers

The following legacy eDAQ layers are supported, with restrictions noted where applicable. Layers not listed are not supported.

NOTE: It is critical that you verify that the latest firmware is loaded on your existing legacy eDAQ layers before removing the legacy eDAQ processor. There is no ability to upgrade firmware with the new EXRCPU.

- **EBRG – Layer Firmware v1.3**
- **EHLS – Layer Firmware v1.12**
- **EDIO – Layer Firmware v1.10**
    - GPS port will not be supported
    - Vehicle Bus modules will not be supported
- **EITB – Layer Firmware v1.5**
- **ENTB – Layer Firmware v1.0**

EDAQXR processor "EXRCPU"

- Axis cameras are supported (limited to the officially supported list).
- Serial Bus modules are not supported.
- The following MXB modules are supported
    - MX1615 B / BR
    - MX1601 B / BR
    - MX1609 KB / KBR
    - MX840 B / BR
    - MX460 B / BR
    - MX411 BR
    - MX471 B / BR
    - MX878 B (Limited Functionality – See Help System)

Channel and Test Setup

This section lists current functional issues that TCE/eDAQ users will likely view as deficiencies. Most of these (and possibly all) will be addressed in future releases.

- There is currently no support for multiple runs. All test runs are currently treated as autonomous runs. A new SIE file is generated for every test run.
- The eDAQXR currently supports Zero and Shunt scaling tasks in an interactive mode only. The user needs to be patient and wait for all channel readings to become stable for each step in the task.
- There is currently no support for automatic zeroing before the start of a test run.
- There is currently no provision for assigning data types to channels. All legacy eDAQ and MXB channels are sourced and stored in the SIE file as 32 bit floats. All other channels are sourced and stored in the SIE file as 64 bit floats (including CAN, GPS, and digital input channels).

Networking

Networking is handled much better in the eDAQXR compared to the eDAQ. The user only needs to communicate with the Master node. There are two operational modes supported. In Mode 1 networking, the master collects channel data from the other nodes and processes it to generate a single SIE file. For more demanding test requirements, Mode 2 networking is available where all nodes process data channels into separate SIE files which are merged into a single SIE file when downloaded.

- Remote control run mode is currently only supported for Mode 1 networking.
- Mode 2 networking does not yet support the capability to share channel data streams across nodes.

Computed channels and DataModes

- Power Saver computed channel is not supported.
- Some of the other eDAQ computed channels currently have no use in the eDAQXR and are not supported (e.g., Engineering Scalar and Integer Scalar).
- Time at Level (multi-dimensional) DataMode is not supported.

RELEASEnotes

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

Modules

• eDAQXR: EXRCPU-32GB w/eDAQ adapt, lid, cables	1-EXR-E-32GB-2
• eDAQXR: EXRCPU-64GB w/eDAQ adapt, lid, cables	1-EXR-E-64GB-2
• eDAQXR: eDAQXR CPU 32GB No base, lid, cables	1-EXRCPU-32GB
• eDAQXR: eDAQXR CPU 64GB No base, lid, cables	1-EXRCPU-64GB-2
• SomatXR: Data Processor with 64 GB memory	1-CX23-R-64-2
• 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
• SomatXR: Frequency Amplifier	1-MX460B-R
• QuantumX: Measuring Amplifier / 16 channels	1-MX1601B
• QuantumX: Bridge Amplifier / 16 channels	1-MX1615B
• QuantumX: Thermocouple Type K / 16 channels	1-MX1609KB
• QuantumX: CAN Module / 4 channels	1-MX471B
• QuantumX: Analog Voltage Output	1-MX878B
• QuantumX: Digital Dynamic	1-MX460B
• QuantumX: Universal Amplifier	1-MX840B

Documentation

• eDAQXR Data Sheet (English / German)	Version 1.1
• eDAQXR Compatible Legacy eDAQ Technical Specifications	Version 1.0
• eDAQXR Quick Start Guide	Version 1.0
• eDAQXR Safety Manual	Version 1.0
• eDAQXR User Manual	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 4.0
• 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 5.1
• MX Modules Quick Start Guide (English / German)	Version 3.0
• 1-UPX00x-2 UPS Data Sheet (English / German)	Version 2.0
• 1-SCM-R-TCX-2 Data Sheet (English)	Version 1.3
• Reference Manual For libsie	Version 1.0
• 1-SCM-R-SG120-300-1000-2 Data Sheet	Version 1.1
• 1-CON-S3005-2 Adapter Data Sheet	Version 1.1

Software Tools / Libraries

- HBM Device Manager   v1.0.0.1
- XR Download Manager   v1.2.2
- XR Emulator   v2.4.0
- libsie SIE library   v1.1.5

Accessories

- eDAQXR: eDAQXR to eDAQ adapter assembly   1-EXR-E-ADT-2
- eDAQXR: eDAQXR PWR CABLE W/REMOTE-PIGTAILS   1-EXR-PWR-IO-PT-2
- Xcode to Xcode Adapter w/Mount   1-CON-S3005-2
- Fastener CaseLink-Rug, 160mmx80mmx12mm   1-CASELINK-RUG-2
- 2 Unit Mounting System, 200mmx130mmx50mm   1-CASEMOUNT2-2
- 3/4 Unit Mounting Syst,295mmx130mmx50mm   1-CASEMOUNT3-2
- Universal Mounting Bracket   1-CASEMOUNT-UMB-2
- Voltage conditioner .3M 840BR adapter   1-SCM-R-VC60-2
- ¼ bridge 1000 .3M 840BR Adapter   1-SCM-R-SG1000-2
- ¼ bridge 350 .3M 840BR adapter   1-SCM-R-SG350-2
- ¼ bridge 120 .3M 840BR adapter   1-SCM-R-SG120-2
- K type thermal couple .3M 840BR adapter   1-SCM-R-TCK-2
- E type thermal couple .3M 840BR adapter   1-SCM-R-TCE-2
- ICP, with BNC .3M 840BR adapter   1-KAB430-0.3
- AC/DC power supply unit (24 V, 120 W)   1-NTX003-2
- Power supply cable (CX23-R to MX module)   1-KAB2110
- Power supply cable (low loss) with exposed wires   1-KAB2115
- Mounting brackets   1-CASEMOUNT
- Ethernet cable (CX23-R / EX23-R to MX module)   1-KAB2100
- Ethernet cable (CX23-R / EX23-R to PC / access point) 1-KAB2106
- Ethernet cable (CX23-R to EX23-R)   1-KAB2107
- Push-pull sensor cable   1-KAB183
- Break away sensor cable   1-KAB184
- Digital I/O cable with exposed wires   1-KAB2101
- GPS/AUX adapter (CX23-R to EGPS-5Hz)   1-KAB2102
- CAN adapter (CX23-R to SomatCR KAB292)   1-KAB2104
- GPS/AUX cable with exposed wires   1-KAB2108
- CAN cable with exposed wires   1-KAB2109
- Precision GPS Receiver-200Hz   1-EGPS-200-B-2
- Precision GPS Receiver-200Hz-PLUS   1-EGPS-200-P-2
- EGPS-200 GPS Antenna   1-EGPS-200-ANT-2
- EGPS-200 GPS Template – RTK   1-EGPS-200-TEM-2
- Trigger Cable for EGPS-200   1-SAC-GPSTRIG-2
- Cable Extensions   1-SAC-EXT-MF

Accessories (cont'd)

- Full-bridge adapter (to eDAQ M8 connector)   1-KAB2117
  (4 wire - no sense line)
- Quarter-bridge adapter (to eDAQ M8 connector)   1-KAB2118
  (3 wire - no sense line)
- Voltage adapter (to eDAQ M8 connector)   1-KAB2119
- ¼ Bridge Adapter (ODU 14 pin to M8F connector)   1-KAB2122-0.3
- CX23 + eDAQ sync cable (M12 to LEMO)   1-KAB2111-2
- GPS Receiver - 5Hz Update   1-EGPS-5HZ-2
- Pelican Case - eDAQ-lite/SXR   1-PEL1520-2
- Pelican Case - eDAQ/eDAQ-lite/SXR   1-PEL1600-2
- AC/DC Power Supply (24 V, 30 W) ODU 4p   1-NTX002
- Plug (ODU 4p push-pull)   1-CON-P1001
- Power supply (ODU, 5 m, open)   1-KAB294-5
- Connecting elements   1-CASELINK
- Carrying handle   1-CASECARRY
- 4 protective caps for ODU sensors   1-CON-A2013
- 2 protective caps for ODU system   1-CON-A2014
- FireWire ExpressCard adapter   1-IF-002
- FireWire intermodule (ODU, IP68, 2 m)   1-KAB272
- FireWire PC (ODU / FW, IP68, 3 m)   1-KAB276-3
- FireWire (module to PC, IP68, 5 m)   1-KAB293-5
- Ethernet cable (IP65/5m)   1-KAB273-5
- Connector (ODU, 14 pol, IP68)   1-CON-P1007
- Plug (ODU 14p break-away)   1-CON-P1016
- 1-wire-EEPROM DS24B33   1-TEDS-PAK
- 10 Connectors thermo mini (type K, RFID)   1-THERMO-MINI
- QuantumX: UPS   1-UPX001-2
- SomatXR Uninterruptable Power Supply   1-UPX002-2